



155 East Broad Street  
21<sup>st</sup> Floor  
Columbus, Ohio, 43215

o: 614-222-1330  
f: 614-222-1337

September 9, 2014

Ms. Barcy F. McNeal, Secretary  
Public Utilities Commission of Ohio  
180 East Broad Street, 11<sup>th</sup> Floor  
Columbus, Ohio 43215

Re: Case No. 14-1256, In the matter of the Application to Commit Energy Efficiency/Peak Demand Reduction Programs (Mercantile Customers Only)- P&G, Air Cooled Chiller Tune Ups

Dear Ms. McNeal:

Please find enclosed the revised Application to Commit Energy Efficiency/Peak Demand Reduction Programs - P&G, Air Cooled Chiller Tune Ups that was filed with the Commission on July 14, 2014. Duke Energy respectfully requests the Commission to accept the revised application into the docket.

Should you have any questions please feel free to contact me.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Carys Cochern', written over the typed name.

Carys Cochern



**14-1256-EL-EEC**

Case No.: \_\_\_\_-\_\_\_\_-EL-EEC

Mercantile Customer: **Procter & Gamble**

Electric Utility: **Duke Energy**

Program Title or Description: **Air Cooled Chiller Tune Ups**

Rule 4901:1-39-05(F), Ohio Administrative Code (O.A.C.), permits a mercantile customer to file, either individually or jointly with an electric utility, an application to commit the customer’s existing demand reduction, demand response, and energy efficiency programs for integration with the electric utility’s programs. The following application form is to be used by mercantile customers, either individually or jointly with their electric utility, to apply for commitment of such programs in accordance with the Commission’s pilot program established in Case No. [10-834-EL-POR](#)

Completed applications requesting the cash rebate reasonable arrangement option (Option 1) in lieu of an exemption from the electric utility’s energy efficiency and demand reduction (EEDR) rider will be automatically approved on the sixty-first calendar day after filing, unless the Commission, or an attorney examiner, suspends or denies the application prior to that time. Completed applications requesting the exemption from the EEDR rider (Option 2) will also qualify for the 60-day automatic approval so long as the exemption period does not exceed 24 months. Rider exemptions for periods of more than 24 months will be reviewed by the Commission Staff and are only approved up the issuance of a Commission order.

Complete a separate application for each customer program. Projects undertaken by a customer as a single program at a single location or at various locations within the same service territory should be submitted together as a single program filing, when possible. Check all boxes that are applicable to your program. For each box checked, be sure to complete all subparts of the question, and provide all requested additional information. Submittal of incomplete applications may result in a suspension of the automatic approval process or denial of the application.

Any confidential or trade secret information may be submitted to Staff on disc or via email at [ee-pdr@puc.state.oh.us](mailto:ee-pdr@puc.state.oh.us).

## Section 1: Mercantile Customer Information

Name: **Procter & Gamble**

Principal address: **11510 Reed Hartman Hwy  
Blue Ash, OH 45241**

Address of facility for which this energy efficiency program applies:

8340 Mason Montgomery Road	Mason,	OH	45040
11473 Grooms Road	Blue Ash,	OH	45241
6083 Center Hill Ave	Cincinnati,	OH	45224

Name and telephone number for responses to questions:

**Megan Fox, (513)287-3367**

Electricity use by the customer (check the box(es) that apply):

- The customer uses more than seven hundred thousand kilowatt hours per year at the above facility. (Please attach documentation.)
- The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.)

## Section 2: Application Information

A) The customer is filing this application (choose which applies):

- Individually, without electric utility participation.
- Jointly with the electric utility.**

B) The electric utility is: **Duke Energy**

C) The customer is offering to commit (check any that apply):

- Energy savings from the customer's energy efficiency program. (Complete Sections 3, 5, 6, and 7.)
- Capacity savings from the customer's demand response/demand reduction program. (Complete Sections 4, 5, 6, and 7.)
- Both the energy savings and the capacity savings from the customer's energy efficiency program. (Complete all sections of the Application.)**

### Section 3: Energy Efficiency Programs

A) The customer's energy efficiency program involves (check those that apply):

- Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)).
- Installation of new equipment to replace equipment that needed to be replaced. The customer installed new equipment on the following date(s):  
**Month and Year**
- Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s):  
\_\_\_\_\_.
- Behavioral or operational improvement.

#### **2013 installation**

B) Energy savings achieved/to be achieved by the energy efficiency program:

- 1) If you checked the box indicating that the project involves the early replacement of fully functioning equipment replaced with new equipment, then calculate the annual savings [(kWh used by the original equipment) - (kWh used by new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: \_\_\_\_\_kWh

- 2) If you checked the box indicating that the customer installed new equipment to replace equipment that needed to be replaced, then calculate the annual savings [(kWh used by less efficient new equipment) - (kWh used by the higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: \_\_\_\_\_kWh

Please describe any less efficient new equipment that was rejected in favor of the more efficient new equipment.

- 3) If you checked the box indicating that the project involves equipment for new construction or facility expansion, then calculate the annual savings [(kWh used by less efficient new equipment) - (kWh used by higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: **XXXXX kWh (See Attachment 1 - Appendix 2)**

Please describe the less efficient new equipment that was rejected in favor of the more efficient new equipment.

- 4) If you checked the box indicating that the project involves behavioral or operational improvements, provide a description of how the annual savings were determined.

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Annual savings: **1,566,300 kWh (See Attachment 1 - Appendix 2)**

## Section 4: Demand Reduction/Demand Response Programs

A) The customer's program involves (check the one that applies):

- Coincident peak-demand savings from the customer's energy efficiency program.**
- Actual peak-demand reduction. (Attach a description and documentation of the peak-demand reduction.)
- Potential peak-demand reduction (check the one that applies):
  - The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a tariff of a regional transmission organization (RTO) approved by the Federal Energy Regulatory Commission.
  - The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a program that is equivalent to an RTO program, which has been approved by the Public Utilities Commission of Ohio.

B) On what date did the customer initiate its demand reduction program?

**Month(s) and Year(s)**

C) What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

**2004.86 KW (See Attachment 1 - Appendix 2)**

## **Section 5: Request for Cash Rebate Reasonable Arrangement (Option 1) or Exemption from Rider (Option 2)**

Under this section, check the box that applies and fill in all blanks relating to that choice.

Note: If Option 2 is selected, the application will not qualify for the 60-day automatic approval. All applications, however, will be considered on a timely basis by the Commission.

A) The customer is applying for:

**Option 1: A cash rebate reasonable arrangement.**

OR

Option 2: An exemption from the energy efficiency cost recovery mechanism implemented by the electric utility.

OR

Commitment payment

B) The value of the option that the customer is seeking is:

Option 1: A cash rebate reasonable arrangement, which is the lesser of (show both amounts):

A cash rebate of **\$8,466.00 (See Attachment 1 - Appendix 3).**

Option 2: An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider.

An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for \_\_\_\_ months (not to exceed 24 months). (Attach calculations showing how this time period was determined.)

OR

A commitment payment valued at no more than \$\_\_\_\_\_. (Attach documentation and calculations showing how this payment amount was determined.)

OR

- Ongoing exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for an initial period of 24 months because this program is part of the customer's ongoing efficiency program. (Attach documentation that establishes the ongoing nature of the program.) In order to continue the exemption beyond the initial 24 month period, the customer will need to provide a future application establishing additional energy savings and the continuance of the organization's energy efficiency program.)

### Section 6: Cost Effectiveness

The program is cost effective because it has a benefit/cost ratio greater than 1 using the (choose which applies):

- Total Resource Cost (TRC) Test. The calculated TRC value is: \_\_\_\_\_  
(Continue to Subsection 1, then skip Subsection 2)
- ✓ Utility Cost Test (UCT). The calculated UCT value is X.XX (**See Attachment 1 - Appendix 4**)

#### Subsection 1: TRC Test Used (please fill in all blanks).

The TRC value of the program is calculated by dividing the value of our avoided supply costs (generation capacity, energy, and any transmission or distribution) by the sum of our program overhead and installation costs and any incremental measure costs paid by either the customer or the electric utility.

The electric utility's avoided supply costs were \_\_\_\_\_.

Our program costs were \_\_\_\_\_.

The incremental measure costs were \_\_\_\_\_.



Subsection 2: UCT Used (please fill in all blanks).

We calculated the UCT value of our program by dividing the value of our avoided supply costs (capacity and energy) by the costs to our electric utility (including administrative costs and incentives paid or rider exemption costs) to obtain our commitment.

Our avoided supply costs were **\$391,090 (See Attachment 1 - Appendix 5).**

The utility's program costs were **\$30,550(See Attachment 1 - Appendix 6).**

The utility's incentive costs/rebate costs were **\$8,466 (See Attachment 1 - Appendix 3).**

## **Section 7: Additional Information**

Please attach the following supporting documentation to this application:

Narrative description of the program including, but not limited to, make, model, and year of any installed and replaced equipment.

A copy of the formal declaration or agreement that commits the program or measure to the electric utility, including:

- 1) any confidentiality requirements associated with the agreement;
- 2) a description of any consequences of noncompliance with the terms of the commitment;
- 3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;
- 4) permission by the customer to the electric utility and Commission staff and consultants to measure and verify energy savings and/or peak-demand reductions resulting from your program; and,
- 5) a commitment by the customer to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.

### **Refer to Offer Letter following this application**

A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results. Additionally, identify and explain all deviations from any program measurement and verification guidelines that may be published by the Commission.

## Attachment 1 – Customer Name

### Appendix 1 – Electric History

<b>00402121 01</b>			
<b>PROCTER &amp; GAMBLE</b>			
<b>11473 GROOMS</b>			
<b>CINCINNATI, OH 45242</b>			
<b>Date</b>	<b>Days</b>	<b>Actual KWH</b>	<b>Bill KWH</b>
6/30/2014	31	2,524,064	2,486,203
5/30/2014	30	2,087,899	2,056,581
4/30/2014	30	1,887,750	1,859,434
3/31/2014	31	1,819,706	1,792,410
2/28/2014	29	1,795,158	1,768,231
1/30/2014	30	1,815,694	1,788,459
12/31/2013	34	1,938,277	1,909,203
12/31/2013	34	1,938,277	1,909,203
11/27/2013	30	1,755,303	1,728,973
11/27/2013	30	1,705,666	1,680,081
10/28/2013	31	1,985,749	1,955,963
9/27/2013	30	2,327,767	2,292,850
8/28/2013	29	2,297,675	2,263,210
7/30/2013	32	2,612,056	2,572,875
6/28/2013	29	2,286,187	2,251,894
5/30/2013	30	2,167,621	2,135,107
4/30/2013	29	1,799,460	1,772,468
4/1/2013	32	1,838,653	1,811,073
2/28/2013	29	1,672,448	1,647,361
1/30/2013	30	1,738,608	1,712,529
12/31/2012	33	1,835,391	1,807,860
11/28/2012	33	1,835,010	1,807,485
10/26/2012	29	1,832,437	1,804,950
9/27/2012	30	2,245,020	2,211,345
8/28/2012	29	2,296,786	2,262,334
7/30/2012	32	2,829,916	2,787,467
6/28/2012	29	2,087,463	2,056,151



### Appendix 5 – Avoided Supply Costs

3. Avoided Supply Costs					
(Upload Amt)					
Measure	T&D	Production	Capacity	Quantity	Total Avoided Costs
SelfDirect Air Cooled Chiller Tune Up per ton	\$3.63	\$9.07	\$6.03	10000	\$187,268
SelfDirect Air Cooled Chiller Tune Up per ton	\$3.63	\$9.07	\$6.03	4000	\$74,907
SelfDirect Air Cooled Chiller Tune Up per ton	\$3.63	\$9.07	\$6.03	1200	\$22,472
SelfDirect Air Cooled Chiller Tune Up per ton	\$3.63	\$9.07	\$6.03	80	\$1,498
SelfDirect Air Cooled Chiller Tune Up per ton	\$3.63	\$9.07	\$6.03	2500	\$46,817
SelfDirect Air Cooled Chiller Tune Up per ton	\$3.63	\$9.07	\$6.03	3000	\$56,180
SelfDirect Air Cooled Chiller Tune Up per ton	\$3.63	\$9.07	\$6.03	104	\$1,948
					<b>\$391,090</b>

### Appendix 6 – Utility Program Costs

4. Utility's program costs			
(Upload Amt)			
Measure	Qty	Admin Costs	Total Costs
SelfDirect Air Cooled Chiller Tune Up per ton	10000	\$1.46	\$14,628
SelfDirect Air Cooled Chiller Tune Up per ton	4000	\$1.46	\$5,851
SelfDirect Air Cooled Chiller Tune Up per ton	1200	\$1.46	\$1,755
SelfDirect Air Cooled Chiller Tune Up per ton	80	\$1.46	\$117
SelfDirect Air Cooled Chiller Tune Up per ton	2500	\$1.46	\$3,657
SelfDirect Air Cooled Chiller Tune Up per ton	3000	\$1.46	\$4,389
SelfDirect Air Cooled Chiller Tune Up per ton	104	\$1.46	\$152
			<b>\$30,550</b>



## Ohio Mercantile Self Direct Program

Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

Email this form along with completed Mercantile Self Direct Prescriptive or Custom applications, proof of payment, energy savings calculations and spec sheets to [SelfDirect@Duke-Energy.com](mailto:SelfDirect@Duke-Energy.com). You may also fax to 1-513-629-5572.

Mercantile customers, defined as using at least 700,000 kWh annually or having an account in multiple locations are eligible for the Mercantile Self Direct program. Indicate which applies:

- a single Duke Energy Ohio account with 700,000 kWh annual usage  
 an account with multiple locations

Please list Duke Energy account numbers below (attach listing of multiple accounts and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
0040-2121-01-7	24,000,000		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart Saver® Custom Incentive. Self Direct rebates are applicable to Prescriptive measures that were installed more than 90 days prior to submission to Duke Energy and have not previously received a Duke Energy Prescriptive rebate.

Self Direct Program rules allow for, though do not require, certain projects that are Prescriptive in nature under the Smart Saver program to be evaluated using the Custom process in the Self Direct program. Use the list on page two as a guide to determine which Self Direct program best fits your project(s). Apply for Self Direct projects using the appropriate application forms in conjunction with this cover sheet.

Self Direct Program rules also allow for behaviorally based and/or no cost and low cost projects to receive rebates.

Please check each box to indicate completion/inclusion of the following program requirements:

<input checked="" type="checkbox"/> All sections of appropriate application(s) are completed	<input checked="" type="checkbox"/> Proof of payment.*	<input checked="" type="checkbox"/> Manufacturer's Spec sheets	<input type="checkbox"/> Energy model/calculations and detailed inputs for Custom applications
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\*If a single payment record is intended to demonstrate the costs of both Prescriptive & Custom projects, please include an additional document with an estimated breakout of costs for each Prescriptive and Custom energy conservation measure.

\*\*Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application. Rebates for such projects may be small in magnitude.



## MERCANTILE SELF DIRECT Ohio Chiller Tune-up Service Application

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

Email the complete, signed application with all required documents to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or fax to 513-629-5572.

Is this application:  NEW (original) or  REVISED (changes made to original application)

Building Type - Required (check one)		
<input type="checkbox"/> Data Centers	<input type="checkbox"/> Full Service Restaurant	<input type="checkbox"/> Office
<input type="checkbox"/> Education/K-12	<input type="checkbox"/> Healthcare	<input type="checkbox"/> Public Assembly
<input type="checkbox"/> Education Other	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Order/Safety
<input type="checkbox"/> Elder Care/Nursing Home	<input type="checkbox"/> Lodging	<input type="checkbox"/> Religious Worship/Church
<input type="checkbox"/> Food Sales/Grocery	<input type="checkbox"/> Retail (Small Box)	<input type="checkbox"/> Service
<input type="checkbox"/> Fast Food Restaurant	<input type="checkbox"/> Retail (Big Box)	<input type="checkbox"/> Warehouse
<input checked="" type="checkbox"/> Other: Office/Research & Development		
How did you hear about the program? (check one)		
<input checked="" type="checkbox"/> Duke Energy Representative	<input type="checkbox"/> Web Site	<input type="checkbox"/> Radio
<input type="checkbox"/> Contractor / Vendor	<input type="checkbox"/> Other _____	

Please check each box to indicate completion of the following program requirements:

<input checked="" type="checkbox"/> All sections of application	<input checked="" type="checkbox"/> Invoice with make, model number, quantity and equipment manufacturer	<input checked="" type="checkbox"/> Tax ID number for payee <input checked="" type="checkbox"/> W-9 for payee	<input checked="" type="checkbox"/> Customer/vendor agree to Terms and Conditions
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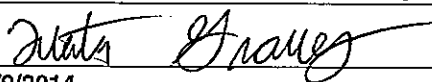
Customer Information					
Customer/Business	Procter & Gamble		Contact	Quentin Graves (JLL)	
Phone	513-626-4646		Account Number	0040-2121-01-7	
Street Address (Where rebate should be mailed)			11510 Reed Hartman Hwy		
City	Blue Ash	State	Ohio	Zip Code	45241
Installation Street Address		11473 Grooms Rd			
City	Blue Ash	State	Ohio	Zip Code	45241
E-mail Address	Graves.q@pg.com				

\*Failure to provide the account number associated with the location where the installation took place will result in rejection of the application.

Vendor Information					
Vendor			Contact		
Phone			Fax		
Street Address					
City		State		Zip Code	
E-mail Address					

If Duke Energy has questions about this application, who should we contact?  Customer  Vendor

Payment Information		
Who should receive rebate payment?	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Vendor (Customer must sign below)
I hereby authorize payment of rebate directly to the vendor:	Customer Signature (written signature)	
	Date	
Provide Tax ID Number for Payee	Customer Tax ID #	31-0411980
	Vendor Tax ID #	

Terms and Conditions			
I have read and hereby agree to the Terms & Conditions and Program Requirements.			
Customer Signature (written signature)		Vendor Signature (written signature)	
Date	5/9/2014	Date	
Title	JLL Facility Manager	Title	



Rebates are subject to change and may be discontinued at the sole discretion of Duke Energy. Equipment must be installed and operable to be eligible for rebates. As Federal Energy Policy Law changes, equipment efficiency requirements are subject to change.

Air Cooled and Water Cooled Chiller Tune-ups						
Manufacturer and Model #	# of Units	Tons Per unit*	Total Project Cost	Current Service Date	Previous Service Date	Total Rebate
YKSDRCJ4-DHCS	2	2000	\$2,666.00	12/30/2013	04/16/2012	\$1,333.00
YK P1 Q2 H2-DB AS	1	1200	\$1,342.00	12/27/2013	02/29/2012	\$671.00
Carrier 30HK-040-D-611	2	40	\$3,240.00	12/16/2013	04/27/2012	\$1620
*Provide manufacturer's spec sheet documenting the size of the unit						

To Calculate your tune-up rebate:	
A. Add up equipment capacity of all units serviced (in tons) and multiply by \$2/ton =	\$10,560.00
B. Cost of service = \$7,248.00 x 50% of total service cost =	\$3,624.00
<b>Total Rebate (lesser amount of row A or row B)=</b>	<b>\$3624</b>
*Rebates cannot exceed 50% of total service invoice (external labor and equipment).	

#### Service Requirements:

1. This rebate is available only once per unit in a 12 month period.
2. An individual chiller is considered one unit.
3. Copy of paid invoice must be included with this application
4. Self serviced (internal) labor should not be included as part of the total service cost. Only external labor will be considered as part of the total service invoice.
5. Cooling service must include the following normal maintenance items (please check if completed):

<input checked="" type="checkbox"/> Air cooled condenser coil cleaning	<input checked="" type="checkbox"/> Compressor amp draw	<input checked="" type="checkbox"/> Low Pressure controls
<input checked="" type="checkbox"/> System Pressure check and adjust	<input checked="" type="checkbox"/> Supply motor amp draw	<input checked="" type="checkbox"/> High Pressure controls
<input checked="" type="checkbox"/> Filter inspect or replace	<input checked="" type="checkbox"/> Condenser fan(s) amp draw	<input checked="" type="checkbox"/> Crankcase heater operation
<input checked="" type="checkbox"/> Belt inspect or replace	<input checked="" type="checkbox"/> Liquid line temperature	<input checked="" type="checkbox"/> Water cooled chiller condenser tube cleaning
<input checked="" type="checkbox"/> Contactors condition	<input checked="" type="checkbox"/> Suction pressure & temperature	<input checked="" type="checkbox"/> Water cooled chiller evaporator tube cleaning
<input checked="" type="checkbox"/> Evaporator condition	<input checked="" type="checkbox"/> Oil level & pressure	

#### Rebate Eligibility

- Rebates are only available to customers on Duke Energy Ohio non-residential rate.
- Duke Energy Customers who purchase electric generation from an alternative supplier are eligible to participate.
- Rebate will not be paid until eligible equipment has been installed, is available to operate, and verification has been completed by Duke Energy staff as noted in the Term & Conditions stated below.
- Duke Energy reserves the right to revise rebate levels and/or qualifying efficiency levels at anytime.
- Customer may assign the rebate to the vendor who installed/supplied the equipment. The customer's signature is required in the appropriate places on this form to assign the rebate to the vendor. Customer agrees that such an action constitutes an irrevocable assignment of the rebate. This assigned rebate must reduce the purchase price paid for the equipment by an equivalent amount.
- Any equipment which, either separately or as part of a project, has or will receive a rebate from any other Duke Energy program
- In no case will Duke Energy pay a rebate above the actual cost of the service.
- Rebate recipient assumes all responsibilities for any tax consequences resulting from Duke Energy rebate payment.
- To qualify for Duke Energy rebates, applicants who provide their social security number as their federal tax identification number for tax purposes must sign and return the "Customer consent to release personal information" form ("Consent Form") along with the application. Rebate applications are processed by a 3<sup>rd</sup> party vendor. The 3<sup>rd</sup> party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the 3<sup>rd</sup> party vendor have signed a confidentiality agreement to protect your personal information. If your social security number is your federal tax ID number and you elect not to sign the Consent Form, please do not send Duke Energy the application, as you will not be qualified to participate in the rebate program.

Form **W-9**  
(Rev. December 2011)  
Department of the Treasury  
Internal Revenue Service

## Request for Taxpayer Identification Number and Certification

**Give Form to the  
requester. Do not  
send to the IRS.**

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return) <b>The Procter &amp; Gamble Company</b>	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input checked="" type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ <input type="checkbox"/> Exempt payee <input type="checkbox"/> Other (see instructions) ▶	
	Address (number, street, and apt. or suite no.) <b>One Procter &amp; Gamble Plaza</b> City, state, and ZIP code <b>Cincinnati, OH 45202</b>	Requester's name and address (optional)
List account number(s) here (optional) <b>Customer #'s 2559, 3524</b>		

### Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

**Note.** If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number								

Employer identification number									
3	1	-	0	4	1	1	9	8	0

### Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

**Sign Here**      Signature of U.S. person ▶

Date ▶

### General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

#### Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

**Note.** If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

**Definition of a U.S. person.** For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

**Special rules for partnerships.** Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.





Remit to: P.O. Box 701620  
Cincinnati, OH 45270-1620  
JAN 03 2014

BILLED BY: JULIE B. #513-527-8137

13006881

INVOICE DATE  
00737693 12/31/13

CUSTOMER:  
21962  
PAM  
JONES LANG LASALLE AMERICAS-P&G  
ACCOUNTING  
PO BOX 5126  
CINCINNATI, OH 45201-5126  
698-6547

JOB ADDRESS:  
JLL/P&G / SWIC / CHILLERS-12/13  
11510 REED HARTMAN HWY  
CINCINNATI, OH 45241

Customer PO No.: 934794-OP-4014409100 Job Number...: 244443  
Bill Contract: 244443

REFERENCE DESCRIPTION	AMOUNT
JLL /P&G @ SWTC/ CHILLER CHILLER MAINTENANCE 2013 PREVENTIVE MAINTENANCE	7,248.00

RECEIVED

JAN 03 2014

JLL ACCOUNTING

OK TO PAY  
*Made [Signature] 1-6-14*

GR'DDD  
JAN 03 2014

Now Accepting Visa/MC/AMX for  
Payment of Invoices.  
A Service Charge of 1.5% per Month  
will be charged on All Past Due Accts.

SUB-TOTAL	7,248.00
TAX	489.24
AMOUNT PAID	.00
AMOUNT DUE	7,737.24
ORIGINAL	DUE ON RECEIPT

DeBra-Kuempel 3976 Southern Avenue Cincinnati, Ohio 45227 Phone 513-271-6500 Fax 513-271-4676

SHIPPED JAN 06 2014

KY MASTER # M04348  
OH CONTRACTOR # 25061

Page \_\_\_ of \_\_\_

# SERVICE REPORT



Job #: 244443 Date: 12/16/13 Tech: 149 Unit: 147

Equip/Mfg: CARRIER Model: 304K0400611

Serial #: 2508Q16090

Status:  Complete  Incomplete  Follow-up

Customer Name: PEG SWIC JLI Acct Mgr: \_\_\_\_\_

Site Address: Reed Norton Hwy

City: Cin State: OH Zip: \_\_\_\_\_

Bill To: Jones Lang Roselle

Equipment Location: HB building

Purpose of Call: P.M. on chillers

Description of Work: P.M. on two Carrier chillers  
Roll all 4 compressor's and completed  
Log sheets.  
Reset time and data in chiller #1

Recommendations: Working OK

- Lock Out/Tag Out
- LOTO Permit
- Ladder (Tie Off)
- Lifting Eqpt/Manpower
- PPE Hard Hat, Glasses
- Fall Protection
- Proper GFCI Usage
- Hot Work
- Fire Alarm Syst Disabled
- Hot Work Permit
- Fire Watch
- Explosion
- Chemical Hazard
- Customer Site Specific
- Confined Space Entry
- CSE Permit
- 70E Elect PPE
- Air Quality Monitor
- Appropriate PPE
- Other

Quantities				Part Number	DeBra-Kuempel P.O. #	Material / Rental / Tool Description
Cash	Truck	Shop	PLR Order			

### Technical Reports Completed:

- AC Check Out
- Refrig. Check Out
- Refrig. Job Site Rpt.
- Heating Check Out
- Add. Material Rpt.
- Start Up Rpt.
- Comp. Failure

### Tool Usage:

- Vac. Pump
- Comb. Analyzer
- Torch
- Rec. Unit
- Crane
- Lift
- Auger
- Sewer Camera
- Other

Tech	Date	Hours	Rate
<u>EW</u>	<u>12-16</u>	<u>8</u>	<u>X1</u>

# of Deliveries to Job:  

Authorized Signature: Cris Pulley Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_  
I have authority to order this work, which has been satisfactorily performed, I agree to the terms and conditions described on the reverse side.



# SERVICE REPORT



**DeBra-Kuempel**

Mechanical-Electrical  
 An EMCOR Company

Job #: 244413 244413 Date: 12/27/13 Tech: 3736 Unit: 43

Equip/Mfg: YORK Model: YKP10212DBAS

Serial #: YDAM72221

Status:  Complete  Incomplete  Follow-up

Customer Name: P.S. Acct Mgr: D.S.

Site Address: BOLD HANCOCK SWIC CHAMBER

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Bill To: \_\_\_\_\_

Equipment Location: CHINA ROOM

Purpose of Call: PM.

Description of Work: UNWIND OFF & REPAIR DRUMS.  
CHECKED MOTOR COUPLING. WENT OVER MACHINE  
& LEAK CHECKED. MADE SURE ALL VALVES ARE OPEN  
& CHINA READY TO START. CLEANED UP. OUTSIDE OF  
MACHINE & CLEANED UP JOB & FLOOR CHECKED.

Recommendations: OIL STARTER ON MOTOR ALSO HI PRESSURE  
SWITCH

- Lock Out/Tag Out
- LO/TO Permit
- Ladder (Tie Off)
- Lifting Eqpt/Manpower
- PPE Hard Hat, Glasses
- Fall Protection
- Proper GFCI Usage
- Hot Work
- Fire Alarm Syst Disabled
- Hot Work Permit
- Fire Watch
- Explosion
- Chemical Hazard
- Customer Site Specific
- Confined Space Entry
- CSE Permit
- 70E Elect PPE
- Air Quality Monitor
- Appropriate PPE
- Other \_\_\_\_\_

Quantities				Part Number	DeBra-Kuempel PO #	Material / Rental / Tool Description
Cash	Truck	Shop	Per Order			

Technical Reports Completed:

- AC Check Out
- Refrig. Check Out
- Refrig. Job Site Rpt.
- Heating Check Out
- Add. Material Rpt.
- Start Up Rpt.
- Comp. Failure

Tech	Date	Hours	Rate
<u>Troy Meyer</u>	<u>12/27/13</u>	<u>8</u>	<u>AF</u>

Tool Usage:

- Vac. Pump
- Comb. Analyzer
- Torch
- Rec. Unit
- Crane
- Lift
- Auger
- Sewer Camera
- Other ELEC LEAD BATTERY

# of Deliveries to Job:

Authorized Signature: \_\_\_\_\_ Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_  
 I have authority to order this work; which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati** 3976 Southern Ave. • Cincinnati, OH 45227 513.271.6500  
**Dayton** 1948 W. Dorothy Ln. • Dayton, OH 45433 937.531.5455  
**Maysville** 702 Parker Dr. • Maysville, KY 41056 606.536.8505  
**Louisville** 3900 Chamberlain Drive, Suite 358 • Louisville, KY 40241 502.363.0454

**24 Hour Service 513.271.6500**

Page 1 of 1

# SERVICE REPORT



Job #: 244413 Date: 12/30/13 Tech: 3375 Unit: 11

Equip/Mfg: YORK Model: YKSDKCT4DHCS

Serial #: SN1M

Status:  Complete  Incomplete  Follow-up

Customer Name: P.G. 12-30 Acct Mgr: DS

Site Address: SHARON WOODS SWZC

City: CINT. - BLUE ASH State: OH Zip: \_\_\_\_\_

Bill To: \_\_\_\_\_

Equipment Location: CHILLER PLANT

Purpose of Call: P.M. - VALVED OFF FOR DRIVERS

Description of Work: VALVED OFF & REPLACED DRIVERS PUMP  
SHUTTERS & OPERATED VALVES BACK UP. DUMPED  
RE-ENTERED BACK INTO MACHINE WHEN REPLACING  
DRIVERS. LEAK CHECK MACHINE & CHECKED FLOW  
SWITCHES - CLEANED UP ES SIDE OF CHINA & FLOOR

Recommendations: REFILL OILING

- Lock Out/Tag Out
- LO/TO Permit
- Ladder (Tie Off)
- Lifting Eqpt/Manpower
- PPE Hard Hat, Glasses
- Fall Protection
- Proper GFCI Usage
- Hot Work
- Fire Alarm Syst Disabled
- Hot Work Permit
- Fire Watch
- Explosion
- Chemical Hazard
- Customer Site Specific
- Confined Space Entry
- CSE Permit
- 70E Elect PPE
- Air Quality Monitor
- Appropriate PPE
- Other \_\_\_\_\_

Quantities				Part Number	DeBra-Kuempel P.O. #	Material / Rental / Tool Description
Cash	Truck	Stock	For Order			

**Technical Reports Completed:**

- AC Check Out
- Refrig. Check Out
- Refrig. Job Site Rpt.
- Heating Check Out
- Add. Material Rpt.
- Start Up Rpt.
- Comp. Failure

Tech	Date	Hours	Rate
<u>Tracy</u>	<u>12-30-13</u>	<u>8</u>	<u>11</u>

**Tool Usage:**

- Vac. Pump
- Comb. Analyzer
- Torch
- Rec. Unit
- Crane
- Lift
- Auger
- Sewer Camera
- Other: WELDER, TORCH, DRILL BIT OR

# of Deliveries to Job:

Authorized Signature: SEE CD #. TICKET Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_

I have authority to order this work, which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati**  
 3976 Southern Ave. • Cincinnati, OH 45227  
 513.271.6500

**Dayton**  
 1948 W. Dorothy Ln. • Dayton, OH 45439  
 937.531.5455

**Maysville**  
 702 Parker Dr. • Maysville, KY 41056  
 606.536.8505

**Louisville**  
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 502.363.0454

**24 Hour Service 513.271.6500**

Page      of     

# SERVICE REPORT



**DeBra-Kuempel**  
Mechanical-Electrical  
An EMCOR Company

Job #: 244443 Date: 12/30/13 Tech: 149 Unit: 142

Equip/Mfg: York Model: YRSDRC04

Serial #: GLFMA195253

Status:  Complete  Incomplete  Follow-up

Customer Name: REG SLATE, JLL Acct Mgr: Tom

Site Address: 2001 Hartman Hwy

City: C.M. State: OH Zip:     

Bill To: Jones Lang & Lochell

Equipment Location: "1" Building

Purpose of Call: Annual P.M. on 3 York Chillers

Description of Work: Completed P.M. checks  
Changed Oils and air filters  
Checked evaporator & condenser flow switches.  
Calibrated high pressure switch (evap) motor  
Checked motor couplings, head check mechanisms.  
\* Recommendations: Checked #1 - Street 90° on relief  
valve bearings.  
Checked #2 - Street 90° on relief valve bearings  
Interviewed operator, JLL to fix leaks

- Lock Out/Tag Out
- LO/TO Permit
- Ladder (Tie Off)
- Lifting Eqpt/Manpower
- PPE Hard Hat, Glasses
- Fall Protection
- Proper GFCI Usage
- Hot Work
- Fire Alarm Syst Disabled
- Hot Work Permit
- Fire Watch
- Explosion
- Chemical Hazard
- Customer Site Specific
- Confined Space Entry
- CSE Permit
- 70E Elect PPE
- Air Quality Monitor
- Appropriate PPE
- Other

Quantities				Part Number	DeBra-Kuempel P.O. #	Material / Rental / Tool Description
Cash	Truck	Ship	Per Order			

**Technical Reports Completed:**

- AC Check Out
- Refrig. Check Out
- Refrig. Job Site Rpt.
- Heating Check Out
- Add. Material Rpt.
- Start Up Rpt.
- Comp. Failure

**Tool Usage:**

- Vac. Pump
- Comb. Analyzer
- Torch
- Rec. Unit
- Crane
- Lift
- Auger
- Sewer Camera
- Other

Tech	Date	Hours	Rate
<u>ED Maddux</u>	<u>12-30</u>	<u>8</u>	<u>X1</u>
<u>ED Maddux</u>	<u>1-2</u>	<u>8</u>	<u>X1</u>

# of Deliveries to Job:     

Authorized Signature: [Signature] Customer P.O.#:      Total:       
I have authority to order this work, which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati**  
3976 Southern Ave. • Cincinnati, OH 45227  
513.271.6500

**Dayton**  
1548 W. Ostrby Ln. • Dayton, OH 45439  
937.531.5455

**Maysville**  
702 Parker Dr. • Maysville, KY 41056  
606.536.8505

**Louisville**  
3600 Chamberlain Drive, Suite 358 • Louisville, KY 40241  
502.368.0454

**24 Hour Service 513.271.6500**

Page 1 of 1

# SERVICE REPORT



Job #: 244443 Date: 01/02/14 Tech: 4502 Unit: 2

Equip/Mfg: York Model: YKSDRCJ4

Serial #: GLFM195253

Status:  Complete  Incomplete  Follow-up

Customer Name: P+G SWIC - JLL Acct Mgr: TV

Site Address: Reed Hartman Highway

City: Cincinnati State: OH Zip: \_\_\_\_\_

Bill To: Jones Lang Lasalle

Equipment Location: D - building

Purpose of Call: annual PM on York chillers

Description of Work: assisted Ed M. with annual maintenance on York chillers.

Recommendations: \_\_\_\_\_

- Lock Out/Tag Out
- LO/TO Permit
- Ladder (Tie Off)
- Lifting Eqpt/Manpower
- PPE Hard-Hat, Glasses
- Fall Protection
- Proper GFCI Usage
- Hot Work
  - Fire Alarm Syst Disabled
  - Hot Work Permit
  - Fire Watch
  - Explosion
- Chemical Hazard
- Customer Site Specific
- Confined Space Entry
  - CSE Permit
- 70E Elect PPE
- Air Quality Monitor
- Appropriate PPE
- Other \_\_\_\_\_

Quantities				Part Number	DeBra-Kuempel P.O. #	Material / Rental / Tool Description
Cash	Truck	Shop	Plr. Order			

**Technical Reports Completed:**

- AC Check Out
- Refrig. Check Out
- Refrig. Job Site Rpt.
- Heating Check Out
- Add. Material Rpt.
- Start Up Rpt.
- Comp. Failure

**Tool Usage:**

- Vac. Pump
- Comb. Analyzer
- Torch
- Rec. Unit
- Crane
- Lift
- Auger
- Sewer Camera
- Other \_\_\_\_\_

Tech	Date	HOURS	Rate
<u>M. Doyle</u>	<u>1-2-14</u>	<u>8</u>	

# of Deliveries to Job:  

Authorized Signature: [Signature]

Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_

I have authority to order this work, which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati**  
 3876 Southern Ave. • Cincinnati, OH 45227  
 513.271.6500

**Dayton**  
 1842 W. Dorothy Ln. • Dayton, OH 45439  
 937.531.5455

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 606.536.8505

**Louisville**  
 3600 Chamberlain Drive, Suite 359 • Louisville, KY 40241  
 502.368.0454

**24 Hour Service 513.271.6500**

## HVAC Guide Specifications Water-Cooled and Condenserless Reciprocating Chillers

Size Range:

**15 to 60 Tons (53 to 210 kW)**

Carrier Model Number:

30HW018-040

30HK040-060

30HL050,060

### Part 1 — General

#### 1.01 SYSTEM DESCRIPTION

Microprocessor controlled water-cooled (HWB,HWC, HWS,HK) or condenserless (HWA,HL) liquid chiller utilizing serviceable, semi-hermetic type compressor.

#### 1.02 QUALITY ASSURANCE

- A. The 30HWB,HWC,HK 60-Hz unit performance shall be rated per ARI (U.S.A.) Standard 550/590-98 at standard rating conditions. All other unit performance shall be based on ARI Standard 550/590-98.
- B. Unit construction shall comply with ANSI/ASHRAE 15, latest revision Safety Standard, NEC, and applicable ASME codes (U.S.A. codes).
- C. Unit shall be certified in accordance with ISO 9002 manufacturing quality standard.
- D. Unit shall be UL listed and UL, Canada certified (30HWA,HWB,HWC,HK 60-Hz units only) (U.S.A. standards).

#### 1.03 DELIVERY, STORAGE AND HANDLING

Unit shall be shipped factory-assembled with all piping and wiring, precharged with a complete operating charge (30HWB,HWC,HWS,HK) or a holding charge (30HWA,HL) of R-22 and shall be stored and handled according to manufacturer's recommendations.

### Part 2 — Products

#### 2.01 EQUIPMENT

##### A. General:

Single-piece liquid chiller consisting of compressor(s), direct expansion cooler, condenser(s) (30HWB,HWC,HWS,HK), controls, safeties, and any hardware required before start-up.

##### B. Unit Cabinet:

1. Frame shall be of heavy-gage galvanized steel with an electrostatically applied baked enamel finish.
2. The 30HW units shall pass through a standard 30-in. (762 mm) door and shall not exceed 36 in. (914 mm) in length (30HWA,B). The 30HK,HL units shall not exceed 36 in. (762 mm) in width.

##### C. Compressor:

1. Reciprocating, serviceable, semi-hermetic type only.
2. Equipped with an automatically reversible oil pump, operating oil charge, suction and discharge shutoff valves, oil sight glass, and a refrigerant suction gas-cooled motor.
3. Each shall be mounted on spring vibration isolators with an isolation efficiency of no less than 95%.
4. Each compressor shall have a crankcase heater, muffler, and suction cutoff unloaders.
5. Speed not to exceed 1750 rpm (29.2 r/s) for 60 Hz units, and 1450 rpm (24.2 r/s) for 50 Hz units.
6. Shall be same manufacturer as chiller.

##### D. Cooler:

1. 30HW: Single-pass ANSI type 316, stainless-steel, brazed-plate construction.  
30HK,HL: Single-pass, shell-and-tube type with removeable heads and multiple internal polypropylene baffles. Seamless copper tubes shall be rolled into tube sheets.
2. Direct expansion refrigerant circuit.
3. Equipped with grooved-end-type fluid connections at least 8 in. (203 mm) above floor level.
4. Insulated with 3/4-in. (19 mm) closed cell foam or equivalent.



5. Cooler shall be tested and stamped according to ASME code (U.S.A.) for working pressures of 430 psig (2965 kPa) on the refrigerant side for 30HW units and 235 psig (1620 kPa) for 30HK,HL units. Cooler shall have a maximum of 300 psig (2069 kPa) fluid-side working pressure for 30HW units and 150 psig (1034 kPa) for 30HK,HL units.
- E. Condenser (30HWC,30HK):
1. Water-cooled shell-and-tube type with seamless, integrally-finned copper tubes and removable heads (2 condensers on 30HK units).
  2. Design and construction shall provide positive subcooling of liquid refrigerant.
  3. Each unit shall be equipped with a pressure relief device, purge cock, and liquid line shutoff valve.
  4. Condenser shall be tested and stamped in accordance with ASME code for refrigerant-side working pressure of 365 psig (2517 kPa) for 30HWC units and 385 psig (2655 kPa) for 30HK units. Condenser shall have a maximum water-side working pressure of 300 psig (2069 kPa) for 30HWC units and 250 psig (1724 kPa) for 30HK units.
- F. Condenser (30HWB):
1. Single-pass, water-cooled, ANSI type 316, stainless-steel brazed-plate construction that shall provide positive subcooling of liquid refrigerant.
  2. Condensers shall be tested and stamped per ASME code for working pressures of 430 psig (2965 kPa) on the refrigerant side. Condenser shall have a maximum of 300 psig (2069 kPa) water-side working pressure.
  3. Equipped with grooved-end-type water connections at least 25 in. (635 mm) above floor level.
  4. Each condenser has a liquid line shutoff valve.
- G. Condenser (30HWS):
1. Water-cooled shell-and-tube type with seamless, integrally-finned 90/10 cupro-nickel tubes and tube sheets with removable heads and zinc anodes.
  2. Design and construction shall provide positive subcooling of liquid refrigerant.
  3. Each unit shall be equipped with a pressure relief device, purge cock, and liquid line shutoff valve.
  4. Condenser shall be tested and stamped in accordance with ASME code for refrigerant-side working pressure of 365 psig (2517 kPa). Condenser shall have a maximum water-side working pressure of 300 psig (2069 kPa).
  5. Heads shall include replaceable zinc anodes for condenser corrosion protection.
- H. Refrigerant Components:
- Each chiller shall contain the following: high side pressure relief device; liquid, suction, and discharge shutoff valves; sight glass; filter drier; thermostatic expansion valve; and charging valve.
- I. Controls and Safeties:
1. Controls:
    - a. Unit controls shall include the following minimum components:
      - 1) Microprocessor.
      - 2) Power and control circuit terminal blocks.
      - 3) ON/OFF control switch.
      - 4) Single set point dial (50 Hz unit) or Scrolling Marquee Display (60 Hz unit).  
NOTE: Scrolling Marquee Display shall be available as a factory-installed option for 50 Hz unit.
      - 5) Thermistor installed to measure saturated condensing temperature, cooler saturation temperature, compressor return gas temperature, and cooler entering and leaving fluid temperatures.
      - 6) Terminal block for temporary and/or permanent interface to the Carrier Comfort Network or similar building system control.
    - b. Unit controls shall be capable of performing the following functions:
      - 1) Automatic circuit lead/lag (30HK,HL only).
      - 2) Pumpout at beginning and end of every circuit cycle.
      - 3) Capacity control based on leaving chilled fluid temperature and compensated by rate of change of return-fluid temperature.
      - 4) Limiting of the chilled fluid temperature pulldown rate at start-up to 1° F (.56° C) per minute to prevent excessive demand spikes (charges) at start-up.
  2. Safeties:

- a. Unit shall be equipped with sensors and all necessary components in conjunction with the control system to provide the unit with the following protections:
    - 1) Loss of refrigerant charge protection.
    - 2) Low fluid flow detection.
    - 3) Low chilled fluid temperature protection.
    - 4) Low control voltage (to unit) protection.
    - 5) High-pressure switch.
  - b. Compressors shall be equipped with the following manual-reset type protections:
    - 1) Pressure overload.
    - 2) Electrical overload through the use of definite-purpose contactors and calibrated, ambient compensated, magnetic trip circuit breakers. Circuit breakers shall open all 3 phases in the event of an overload in any one phase (single-phasing condition).
- J. Operating Characteristics:
1. Unit shall be capable of starting with up to 95 F (35 C) fluid temperature entering the cooler.
  2. Unit shall be capable of operating with variable cooler fluid flow.
- K. Electrical Requirements:
1. Single-point electrical power connection with terminal block. Shall include power for control circuit.
  2. Control points shall be accessed through terminal block.
- L. Special Features:
1. Oil Safety Switch (standard on HWA,HL, and brine units, field-installed accessory on HWB,HWC,HWS,HK standard units):  
This switch senses differential oil pressure and prevents unit operation at low oil pressures.
  2. Hot Gas Bypass:  
This factory-installed option (30HW) or field-installed accessory (30HK,HL) shall permit chiller unloading capacity down to 10% of maximum loaded capacity.
  3. Pressure Gage Panel:  
This field-installed accessory shall include both suction and discharge pressure gages with shutoff valves.
  4. Sound Enclosure Panels:  
This acoustic package shall be either factory (30HW units only) or field installed and shall entirely enclose the compressor section to reduce radiated sound by approximately 5 dBA.
  5. Mobility Package (30HW units only):  
This package shall be either factory (30HWA,B only) or field installed and shall include 4 swivel wheels for easy unit mobility.  
NOTE: The 30HWC,S units require 2 packages.
  6. Vibration Isolators (30HW units only):  
Vibration isolators shall be field installed before the unit is set into its final location and shall reduce vibration transmission through the mounting area of the chiller.
  7. Multi-Chiller Control:  
The multi-chiller control shall be field installed, and shall sequence up to 8 chillers in parallel.
  8. Proof-of-Flow Switch:  
This field-installed accessory shall sense fluid pressure differential across the chiller, and shall be compatible with the multi-chiller control accessory.
  9. Compressor Ground Fault Sensor:  
Ground-current sensing shall deenergize the compressor on sensing of a  $2.5 \pm 2$  amps current imbalance from primary to ground to prevent formation of acids from motor burnout. It shall be a field-installed accessory.
  10. Part-Wind Start (option on 30HW025-040; special order on HK040-060 and HL050,060):  
Part-wind start shall be factory installed to reduce compressor inrush current.
  11. Non-Fused Disconnect (30HW units only):  
The non-fused disconnect shall be factory installed and shall disconnect all power to the unit (including control circuit power).
  12. Medium Temperature Brine (30HW units only):  
Special modifications shall be made at the factory to permit operation with leaving chilled fluid temperatures between 15 to 39 F (-9.4 to 3.9 C).  
NOTE: This is a special order for 30HK,HL units.
  13. Condenser Manifold Package (HK only):

This field-installed accessory shall provide common fluid inlet and outlet connections.

14. Scrolling Marquee Display (standard on 60 Hz unit; available as a factory-installed option for 50 Hz unit):
  - a. Single leaving water temperature set point potentiometer.
  - b. The diagnostic display module shall be capable of indicating the safety lockout condition by displaying a code for which an explanation may be scrolled at the display. Information included for display shall be:
    - 1) Compressor lockout.
    - 2) Loss of charge.
    - 3) Low fluid flow.
    - 4) Low oil pressure.
    - 5) Cooler freeze protection.
    - 6) Thermistor malfunction.
    - 7) Entering and leaving-fluid temperature.
    - 8) All set points.
    - 9) Time of day.
  - c. Display module, in conjunction with the microprocessor, must also be capable of displaying the output (results) of a service test. Service test shall verify operation of every switch, thermistor, fan, and compressor before chiller is started.
15. Energy Management Module (EMM):

EMM shall be capable of:

  - a. Leaving temperature reset from space temperature, outdoor temperature, or 4 to 20 mA signal.
  - b. Demand limit or load shed via field supplied 4 to 20 mA signal or 2-step discrete contact closure.



## Ohio Mercantile Self Direct Program

Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

Email this form along with completed Mercantile Self Direct Prescriptive or Custom applications, proof of payment, energy savings calculations and spec sheets to [SelfDirect@Duke-Energy.com](mailto:SelfDirect@Duke-Energy.com). You may also fax to 1-513-629-5572.

Mercantile customers, defined as using at least 700,000 kWh annually or having an account in multiple locations are eligible for the Mercantile Self Direct program. Indicate which applies:

- a single Duke Energy Ohio account with 700,000 kWh annual usage  
 an account with multiple locations

Please list Duke Energy account numbers below (attach listing of multiple accounts and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
6930-2121-01-0	38,000,000		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart Saver® Custom Incentive. Self Direct rebates are applicable to Prescriptive measures that were installed more than 90 days prior to submission to Duke Energy and have not previously received a Duke Energy Prescriptive rebate.

Self Direct Program rules allow for, though do not require, certain projects that are Prescriptive in nature under the Smart Saver program to be evaluated using the Custom process in the Self Direct program. Use the list on page two as a guide to determine which Self Direct program best fits your project(s). Apply for Self Direct projects using the appropriate application forms in conjunction with this cover sheet.

Self Direct Program rules also allow for behaviorally based and/or no cost and low cost projects to receive rebates.

Please check each box to indicate completion/inclusion of the following program requirements:

<input checked="" type="checkbox"/> All sections of appropriate application(s) are completed	<input checked="" type="checkbox"/> Proof of payment.*	<input checked="" type="checkbox"/> Manufacturer's Spec sheets	<input type="checkbox"/> Energy model/calculations and detailed inputs for Custom applications
--	--	--	--

\*If a single payment record is intended to demonstrate the costs of both Prescriptive & Custom projects, please include an additional document with an estimated breakout of costs for each Prescriptive and Custom energy conservation measure.

\*\*Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application. Rebates for such projects may be small in magnitude.



Application Type	Prescriptive Measures with Optional Custom Processing	
Heating & Cooling and Window Films, Programmable Thermostats, & Guest Room Energy Management Systems	<input type="checkbox"/> Energy Star Window/Sleeve/Room AC <input type="checkbox"/> Central Air Unit	<input type="checkbox"/> Air Source Heat Pump Water Heater
	<input type="checkbox"/> Setback/Programmable Thermostat <input type="checkbox"/> Guestroom Energy Management Control	<input type="checkbox"/> Window Film
Chillers & Thermal Storage	<input type="checkbox"/> Air Cooled Chiller	<input type="checkbox"/> Water Cooled Chiller
Motors, Pumps and Variable Frequency Drives (VFDs)	<input type="checkbox"/> VFD – Applied to Process Pump <input type="checkbox"/> VFD – Applied to HVAC Pump	<input type="checkbox"/> VFD – applied to HVAC Fan
Food Service	<input type="checkbox"/> ENERGY STAR Hot Food Holding Cabinet <input type="checkbox"/> Night Covers for Display <input type="checkbox"/> ECM Cooler, Freezer, and Display Case Motors <input type="checkbox"/> ENERGY STAR Solid or Glass Door Reach-in Freezer or Refrigerator	<input type="checkbox"/> Anti-Sweat Heater Control <input type="checkbox"/> Cooking Equipment <input type="checkbox"/> ENERGY STAR ICE MACHINE
Process Equipment	<input type="checkbox"/> Engineered Nozzle – COMPRESSED AIR <input type="checkbox"/> Air compressor equipped with VFD	<input type="checkbox"/> Pellet Dryer Duct Insulation
Chiller Tune-ups	<input type="checkbox"/> Air cooled chiller tune-up	<input checked="" type="checkbox"/> Water cooled chiller tune-up

Please indicate above any Prescriptive energy conservation measures to be evaluated through the Custom process. Only Prescriptive measures listed above are eligible for this option. To receive a Self Direct Custom rebate, a detailed analysis of pre-project and post-project energy usage and project costs must be included in the application.

Although some Self Direct Prescriptive measures are eligible for evaluation through Custom processes, such an approach may not be most effective for certain measures.



## MERCANTILE SELF DIRECT Ohio Chiller Tune-up Service Application

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

Email the complete, signed application with all required documents to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or fax to 513-629-5572.

Is this application:  **NEW** (original) or  **REVISED** (changes made to original application)

Building Type - Required (check one)		
<input type="checkbox"/> Data Centers	<input type="checkbox"/> Full Service Restaurant	<input type="checkbox"/> Office
<input type="checkbox"/> Education/K-12	<input type="checkbox"/> Healthcare	<input type="checkbox"/> Public Assembly
<input type="checkbox"/> Education Other	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Order/Safety
<input type="checkbox"/> Elder Care/Nursing Home	<input type="checkbox"/> Lodging	<input type="checkbox"/> Religious Worship/Church
<input type="checkbox"/> Food Sales/Grocery	<input type="checkbox"/> Retail (Small Box)	<input type="checkbox"/> Service
<input type="checkbox"/> Fast Food Restaurant	<input type="checkbox"/> Retail (Big Box)	<input type="checkbox"/> Warehouse
<input checked="" type="checkbox"/> Other: Office/Research Building		
How did you hear about the program? (check one)		
<input checked="" type="checkbox"/> Duke Energy Representative	<input type="checkbox"/> Web Site	<input type="checkbox"/> Radio
<input type="checkbox"/> Contractor / Vendor	<input type="checkbox"/> Other _____	

Please check each box to indicate completion of the following program requirements:

<input checked="" type="checkbox"/> All sections of application	<input checked="" type="checkbox"/> Invoice with make, model number, quantity and equipment manufacturer	<input checked="" type="checkbox"/> Tax ID number for payee <input checked="" type="checkbox"/> W-9 for payee	<input checked="" type="checkbox"/> Customer/vendor agree to Terms and Conditions
---	--	--	---

Customer Information					
Customer/Business	Procter & Gamble	Contact	Quentin Graves (JLL)		
Phone	513-698-4540	Account Number	6930-2121-01-0		
Street Address (Where rebate should be mailed)		11510 Reed Hartman Hwy			
City	Blue Ash	State	Ohio	Zip Code	45241
Installation Street Address		8340 Mason Montgomery Road			
City	Mason	State	Ohio	Zip Code	45040
E-mail Address	graves.q@pg.com				

\*Failure to provide the account number associated with the location where the installation took place will result in rejection of the application.

Vendor Information					
Vendor		Contact			
Phone		Fax			
Street Address					
City		State		Zip Code	
E-mail Address					

If Duke Energy has questions about this application, who should we contact?  Customer  Vendor

Payment Information		
Who should receive rebate payment?	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Vendor (Customer must sign below)
I hereby authorize payment of rebate directly to the vendor:	Customer Signature (written signature)	
	Date	
Provide Tax ID Number for Payee	Customer Tax ID #	31-0411980
	Vendor Tax ID #	

Terms and Conditions			
I have read and hereby agree to the Terms & Conditions and Program Requirements.			
Customer Signature (written signature)		Vendor Signature (written signature)	
Date	5/15/2014	Date	
Title	JLL Facility Manager	Title	



Rebates are subject to change and may be discontinued at the sole discretion of Duke Energy. Equipment must be installed and operable to be eligible for rebates. As Federal Energy Policy Law changes, equipment efficiency requirements are subject to change.

<b>Air Cooled and Water Cooled Chiller Tune-ups</b>						
Manufacturer and Model #	# of Units	Tons Per unit*	Total Project Cost	Current Service Date	Previous Service Date	Total Rebate
York YK S2 S2 J2 DH AS	5	2000	\$6,804.00	02/18/2013	02/10/2012	\$3,402.00
*Provide manufacturer's spec sheet documenting the size of the unit						

<b>To Calculate your tune-up rebate:</b>	
A. Add up equipment capacity of all units serviced (in tons) and multiply by \$2/ton =	\$20,000.00
B. Cost of service = \$6,804.00 x 50% of total service cost =	\$3,402.00
<b>Total Rebate (lesser amount of row A or row B)=</b>	<b>3402</b>
*Rebates cannot exceed 50% of total service invoice (external labor and equipment).	

#### Service Requirements:

1. This rebate is available only once per unit in a 12 month period.
2. An individual chiller is considered one unit.
3. Copy of paid invoice must be included with this application
4. Self serviced (internal) labor should not be included as part of the total service cost. Only external labor will be considered as part of the total service invoice.
5. Cooling service must include the following normal maintenance items (please check if completed):

<input checked="" type="checkbox"/> Air cooled condenser coil cleaning	<input checked="" type="checkbox"/> Compressor amp draw	<input checked="" type="checkbox"/> Low Pressure controls
<input checked="" type="checkbox"/> System Pressure check and adjust	<input checked="" type="checkbox"/> Supply motor amp draw	<input checked="" type="checkbox"/> High Pressure controls
<input checked="" type="checkbox"/> Filter inspect or replace	<input checked="" type="checkbox"/> Condenser fan(s) amp draw	<input checked="" type="checkbox"/> Crankcase heater operation
<input checked="" type="checkbox"/> Belt inspect or replace	<input checked="" type="checkbox"/> Liquid line temperature	<input checked="" type="checkbox"/> Water cooled chiller condenser tube cleaning
<input checked="" type="checkbox"/> Contactors condition	<input checked="" type="checkbox"/> Suction pressure & temperature	<input checked="" type="checkbox"/> Water cooled chiller evaporator tube cleaning
<input checked="" type="checkbox"/> Evaporator condition	<input checked="" type="checkbox"/> Oil level & pressure	

#### Rebate Eligibility

- Rebates are only available to customers on Duke Energy Ohio non-residential rate.
- Duke Energy Customers who purchase electric generation from an alternative supplier are eligible to participate.
- Rebate will not be paid until eligible equipment has been installed, is available to operate, and verification has been completed by Duke Energy staff as noted in the Term & Conditions stated below.
- Duke Energy reserves the right to revise rebate levels and/or qualifying efficiency levels at anytime.
- Customer may assign the rebate to the vendor who installed/supplied the equipment. The customer's signature is required in the appropriate places on this form to assign the rebate to the vendor. Customer agrees that such an action constitutes an irrevocable assignment of the rebate. This assigned rebate must reduce the purchase price paid for the equipment by an equivalent amount.
- Any equipment which, either separately or as part of a project, has or will receive a rebate from any other Duke Energy program
- In no case will Duke Energy pay a rebate above the actual cost of the service.
- Rebate recipient assumes all responsibilities for any tax consequences resulting from Duke Energy rebate payment.
- To qualify for Duke Energy rebates, applicants who provide their social security number as their federal tax identification number for tax purposes must sign and return the "Customer consent to release personal information" form ("Consent Form") along with the application. Rebate applications are processed by a 3<sup>rd</sup> party vendor. The 3<sup>rd</sup> party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the 3<sup>rd</sup> party vendor have signed a confidentiality agreement to protect your personal information. If your social security number is your federal tax ID number and you elect not to sign the Consent Form, please do not send Duke Energy the application, as you will not be qualified to participate in the rebate program.

Form **W-9**  
(Rev. December 2011)  
Department of the Treasury  
Internal Revenue Service

# Request for Taxpayer Identification Number and Certification

Give Form to the  
requester. Do not  
send to the IRS.

**Name (as shown on your income tax return)**  
**The Procter & Gamble Company**

**Business name/disregarded entity name, if different from above**

Check appropriate box for federal tax classification:  
 Individual/sole proprietor     C Corporation     S Corporation     Partnership     Trust/estate  
 Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ \_\_\_\_\_  Exempt payee  
 Other (see instructions) ▶ \_\_\_\_\_

**Address (number, street, and apt. or suite no.)**  
**One Procter & Gamble Plaza**  
City, state, and ZIP code  
**Cincinnati, OH 45202**

**Requester's name and address (optional)**

List account number(s) here (optional)  
**Customer #'s 2559, 3524**

## Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number								
			-					

**Note.** If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Employer identification number									
3	1	-	0	4	1	1	9	8	0

## Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. citizen or other U.S. person (defined below).

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

**Sign Here**      Signature of U.S. person ▶

Date ▶

## General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

### Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

**Note.** If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

**Definition of a U.S. person.** For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

**Special rules for partnerships.** Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.





Remit to: P.O. Box 701620  
AUG 05 2013 Cincinnati, OH 45270-1620

BILLED BY: JULIE B. #513-527-8137

1300/313

INVOICE DATE  
00724524 7/31/13

**CUSTOMER:**  
21962  
PAM  
JONES LANG LASALLE AMERICAS-P&G  
ACCOUNTING  
PO BOX 5126  
CINCINNATI, OH 45201-5126  
698-6547

**JOB ADDRESS:**  
JLL/P&G / MBC / CHILLERS-12/13  
8700 MASON MONTGOMERY ROAD  
MASON, OH 45040

Customer PO No.: 4014407000-OP-951897 Job Number...: 244423  
Bill Contract: 244423

REFERENCE DESCRIPTION	AMOUNT
JLL / P&G @ MBC-CHILLER PM 2013 MAINTENANCE	
PREVENTIVE MAINTENANCE	8,233.00

RECEIVED  
AUG 05 2013  
N  
JLL ACCOUNTING

OK TO PAY  
*[Signature]*  
8.7.13

GRDDD  
AUG 05 2013

Now Accepting Visa/MC/AMX for Payment of Invoices.	SUB-TOTAL	8,233.00
A Service Charge of 1.5% per Month will be charged on All Past Due Accts.	TAX	535.15
	AMOUNT PAID	.00
	AMOUNT DUE	8,768.15
	ORIGINAL DUE ON RECEIPT	

DeBra-Kuempel 3976 Southern Avenue Cincinnati, Ohio 45227 Phone 513-271-6500 Fax 513-271-4676

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KY MASTER # M04348  
OH CONTRACTOR # 25061

Page \_\_\_ of \_\_\_

# SERVICE REPORT

  
**DeBra-Kuempel**  
Mechanical-Electrical  
An EMCOR Company

Job #: 244423 Date: 02/1/13 Tech: 149 Unit: 1-5

Equip/Mfg: YORK Model: YK929202

Serial #: 2000 Ten Chillers

Status:  Complete  Incomplete  Follow-up  Lock Out/Tag Out

Customer Name: REG MBC / JLL Acct Mgr: Tom V  LOTO Permit

Site Address: Mason Montgomery Rd.  Ladder (Tie Off)

City: Cin State: OH Zip:   Lifting Eq/Manpower

Bill To: JAMES KELLY LaSalle  PPE Hard Hat, Glasses

Equipment Location:   Fall Protection

Purpose of Call: Annual Maintenance on 5 Chillers  Proper GFCI Usage

Description of Work: Took o.l samples from 5 chillers and completed paper work.  Hot Work

Basic maintenance task, checked flow switches on all chillers, topped off motor oil bearings  Fire Alarm Syst Disabled

reservoirs on all chillers.  Hot Work Permit

Recommendations: Chiller #4 Filling up o.l bath  Fire Watch

every 3 to 4 days  Explosion

Chemical Hazard  Customer Site Specific

Confined Space Entry  CSE Permit

TOE Elect PPE  Air Quality Monitor

Appropriate PPE  Other

Quantities				Est Number	DeBra-Kuempel P.O.#	Material Used / Job Description
Cuts	Trunk	Strip	Per order			

Technical Reports Completed:

AC Check Out  Refrig. Check Out  Refrig. Job Site Rpt.  Heating Check Out

Add. Material Rpt.  Start Up Rpt.  Comp. Failure

Tool Usage:

Vac. Pump  Comb. Analyzer  Torch

Rec. Unit  Crane  LWT

Auger  Sewer Camera

Other

Techn	Rate	hours	Rate
<u>Ed Maddux</u>	<u>2-7</u>	<u>6</u>	<u>X1</u>
<u>Ed Maddux</u>	<u>2-8</u>	<u>8</u>	<u>X1</u>

# of Deliveries to Job:

Authorized Signature: \_\_\_\_\_ Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_  
I have authority to order this work; which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati**  
3978 Southern Ave • Cincinnati, OH 45227  
513.271.6500

**Dayton**  
1948 W. Dorothy Ln. • Dayton, OH 45439  
937.531.5455

**Maysville**  
702 Parker Dr. • Maysville, KY 41056  
606.536.8505

**Louisville**  
3600 Chamberlain Drive, Suite 358 • Louisville, KY 40241  
502.368.0454

**24 Hour Service 513.271.6500**  
OFFICE

*5768*

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KY MASTER # MD4348  
OH CONTRACTOR # 25061

Page \_\_\_ of \_\_\_

# SERVICE REPORT



Job #: 244423 Date: 02/18/13 Tech: 149 Unit: 1-5

Equip/Mfg: YORK Model: YK929202

Serial #: \_\_\_\_\_

Status:  Complete  Incomplete  Follow-up

Lock Out/Tag Out

Customer Name: PTC MBC / OLL Acct Mgr: \_\_\_\_\_

LOTO Permit

Site Address: Mason Montgomery Rd.

Ladder (Tie Off)

City: Cala State: OH Zip: \_\_\_\_\_

Lifting Eqpt/Manpower

Bill To: JAMES LONG BASILE

PPE Hard Hat, Glasses

Equipment Location: C.O.P.

Fall Protection

Purpose of Call: Annual P.M. on chillers

Proper GFCI Usage

Description of Work: Checked motor compressors, oil chillers

Hot Work

Tightened electrical connections, logged chillers

Fire Alarm Syst Disabled

That are running. Checked all oil heaters.

Hot Work Permit

Adjusted oil heaters and oil pumps. Checked

Fire Watch

oil pump STARTERS. Greased machines.

Explosion

Recommendations: Recommend changing oil in motors

Chemical Hazard

Chiller #4 needs new oil seal.

Customer Site Specific

Confined Space Entry

CSE Permit

70E Elect PPE

Air Quality Monitor

Appropriate PPE

Other

Quantities				Part Number	D. Bra-Kuempel P.O.#	Material / Rental / Tool Description
Case	Each	Shop	Per Grease			
			<input checked="" type="checkbox"/>			<u>24 Liters Oil</u>
			<input checked="" type="checkbox"/>			<u>Oil Filters</u>
		<input checked="" type="checkbox"/>				<u>Refr. &amp; Chiller</u>

### Technical Reports Completed:

- AC Check Out
- Refrig. Check Out
- Refrig. Job Site Rpt.
- Heating Check Out
- Add. Material Rpt.
- Start Up Rpt.
- Comp. Failure

### Tool Usage:

- Vac. Pump
- Comb. Analyzer
- Torch
- Rec. Unit
- Crane
- Lift
- Auger
- Sewer Camera
- Other

Technician	Date	Hours	Rate
<u>Ed Maddux</u>	<u>2-18</u>	<u>8</u>	<u>X1</u>
<u>Ed Maddux</u>	<u>2-19</u>	<u>8</u>	<u>X1</u>
<u>Ed Maddux</u>	<u>2-20</u>	<u>2</u>	<u>X1</u>

# of Deliveries to Job:

Authorized Signature: Tom Meryl Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_

I have authority to order this work; which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati**  
3976 Southern Ave • Cincinnati, OH 45227  
513.271.6500

**Dayton**  
1948 W. Dorothy Ln. • Dayton, OH 45439  
937.531.6456

**Maysville**  
702 Parker Dr. • Maysville, KY 41056  
606.538.8505

**Louisville**  
3600 Chamberlain Drive, Suite 358 • Louisville, KY 40241  
502.368.0454

**24 Hour Service 513.271.6500**  
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KY MASTER # M04348  
OH CONTRACTOR # 25061

Page 1 of 1

# SERVICE REPORT

  
**DeBra-Kuempel**  
Mechanical-Electrical  
An ENCOR Company

Job #: 244423 Date: 02/18/13 Tech: 0576 Unit: 1-5

Equip/Mfg: York Model: ON-File

Serial #: ON-File

Status:  Complete  Incomplete  Follow-up

Customer Name: P&G MBC Acct Mgr: DAVE S

Site Address: MASON-MONTGOMERY RA

City: Cincinnati State: Ohio Zip: \_\_\_\_\_

Bill To: \_\_\_\_\_

Equipment Location: Central Utility Plant

Purpose of Call: Contract Annual PM and maintenance on chillers

Description of Work: Worked with Ed Maddox on chiller maintenance at Mason P&G, went through and checked electrical connections, hooked up to panel and downloaded history faults. Changed oil filters, and clean up driers, also checked differential flow switch operation and filled out maintenance sheet. Used H10 leak detector to

Recommendations: go over chiller to look for leaks, wiped down machines and cleaned up work area. Adjusted and monitored oil temp on chiller #2 raised to 140, adjusted the 480v thermostat.

- Lock Out/Tag Out
- LOTO Permit
- Ladder (Tie Off)
- Lifting Eqpt/Manpower
- PPE Hard Hat, Glasses
- Fall Protection
- Proper GFCI Usage
- Hot Work
- Fire Alarm Syet Disabled
- Hot Work Permit
- Fire Watch
- Explosion
- Chemical Hazard
- Customer Site Specific
- Confined Space Entry
- CSE Permit.
- TDE Elect PPE
- Air Quality Monitor
- Appropriate PPE
- Other \_\_\_\_\_

Quantities				To: (Name)	U. (By: Name) (P#)	Material: (By: Name) (L#) (Description)
Box	Truck	Ship	Per Code			

### Technical Reports Completed:

- AC Check Out
- Refrig. Check Out
- Refrig. Job Site Rpt.
- Heating Check Out
- Add. Material Rpt.
- Start Up Rpt.
- Comp. Failure

### Tool Usage:

- Vac. Pump
- Comb. Analyzer
- Torch
- Rec. Unit
- Crane
- Lift
- Auger
- Sewer Camera
- Other \_\_\_\_\_

Tech	Date	Hours	Rate
<u>Donny Knight</u>	<u>2-18</u>	<u>8.0</u>	<u>Reg</u>
<u>Donny Knight</u>	<u>2-20</u>	<u>8.0</u>	<u>Reg</u>

# of Deliveries to Job:

Authorized Signature: Tom Moray Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_  
I have authority to order this work; which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati**  
3976 Southern Ave. • Cincinnati, OH 45227  
513.271.6500

**Dayton**  
1948 W. Dorothy Ln. • Dayton, OH 45439  
937.531.5455

**Maysville**  
702 Parker Dr. • Maysville, KY 41056  
606.536.8505

**Louisville**  
3600 Chamberlain Drive, Suite 358 • Louisville, KY 40241  
502.368.0454

**24 Hour Service 513.271.6500**  
OFFICE

SHIPPED AUG 06 2013

OH CONTRACTOR # 25061

Page of

# SERVICE REPORT

**DeBra-Kuempel**  
Mechanical-Electrical  
An EMCOR Company

Job #: 244428 Date: 03/21/13 Tech: 149 Unit: 004

Equip/Mfg: YORK Model: YK925202

Serial #: \_\_\_\_\_

Status:  Complete  Incomplete  Follow-up

Customer Name: PEG MBC/JA Acct Mgr: \_\_\_\_\_

Site Address: Mason Montgomery Rd.

City: Mason State: \_\_\_\_\_ Zip: \_\_\_\_\_

Bill To: James, home based

Equipment Location: CUP

Purpose of Call: check for AH oil change

Description of Work: Lock out oil pump and oil heater  
Removed old oil and pumped in 20 gals  
of new York FOIL  
Changed oil filter.

Recommendations: \_\_\_\_\_

- Lock Out/Tag Out
- LOTO Permit
- Ladder (Tie Off)
- Lifting Eqpt/Manpower
- PPE Hard Hat, Glasses
- Fall Protection
- Proper GFCI Usage
- Hot Work
- Fire Alarm Syst Disabled
- Hot Work Permit
- Fire Watch
- Explosion
- Chemical Hazard
- Customer Site Specific
- Confined Space Entry
- CSE Permit
- TOE Elect PPE
- Air Quality Monitor
- Appropriate PPE
- Other \_\_\_\_\_

Quantities				Part Number	U. H. R. R. U. P. I. E. #	Material / Part / Tool Description
Case	Pack	Shp.	Per Order			
			20		728598	20 gal York FOIL
			1			Oil Filter
						Oil Filter O-Rings

Technical Reports Completed:

AG Check Out  Refrig. Check Out  Refrig. Job Site Rpt.  Heating Check Out

Add. Material Rpt.  Start Up Rpt.  Comp. Failure

Tech	Date	Hours	Rate
<u>EV Markov</u>	<u>3-21</u>	<u>4</u>	<u>21</u>

- Tool Usage:
- Vac. Pump
  - Comb. Analyzer
  - Torch
  - Rec. Unit
  - Crane
  - LIR
  - Auger
  - Sewer Camera
  - Other \_\_\_\_\_

# of Deliveries to Job: 1

Authorized Signature: [Signature] Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_

I have authority to order this work, which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati**  
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OFFICE

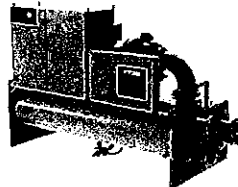
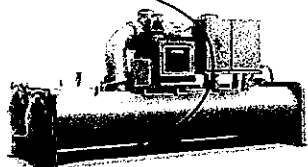
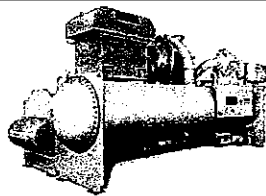

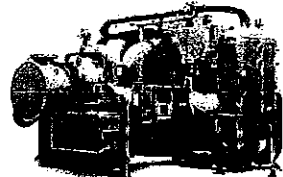
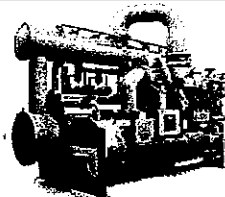
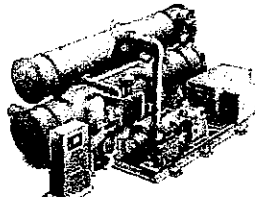
SHIPPED AUG 03 2013

# YORK®

## Water-Cooled Chillers

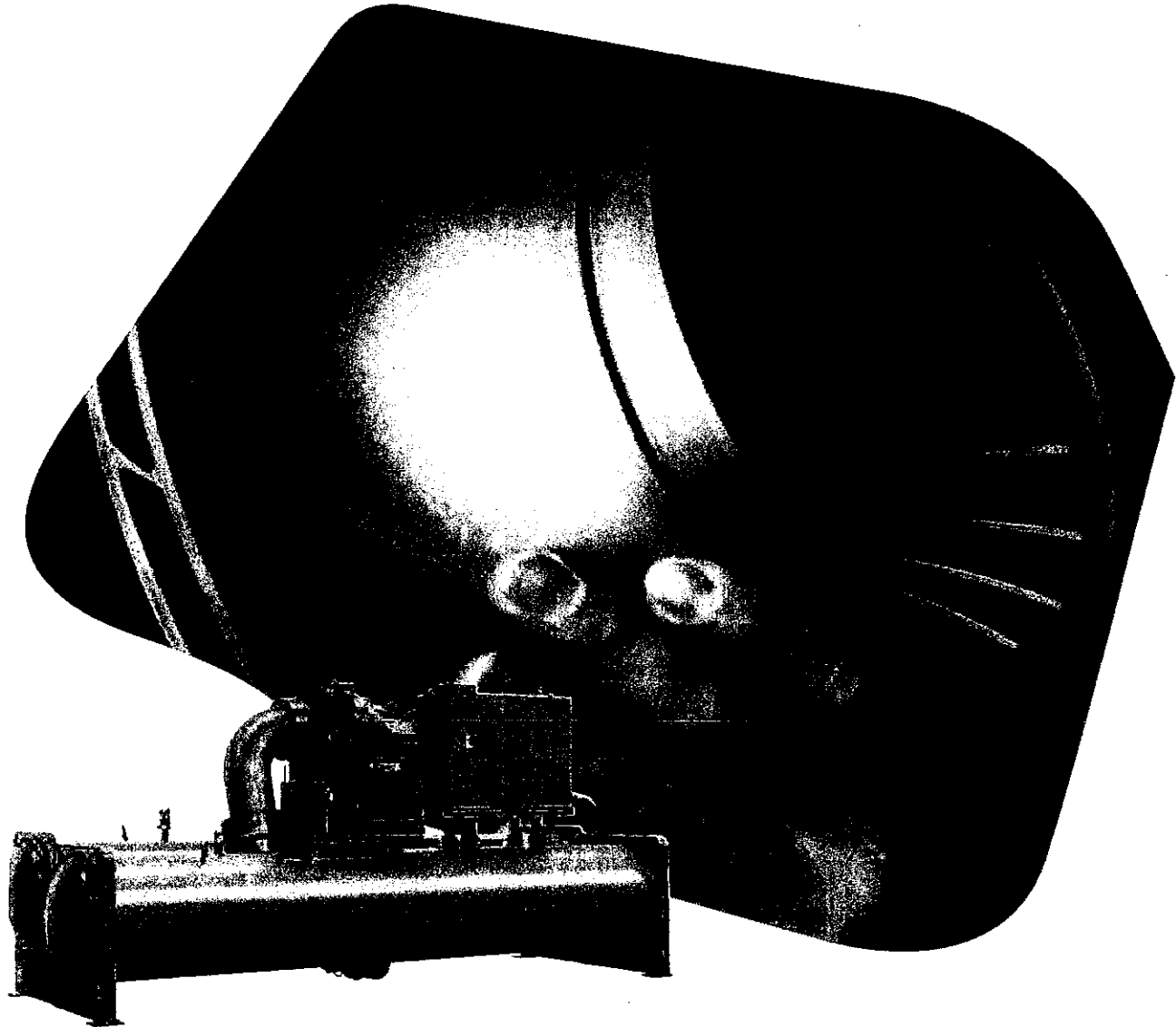


(All chillers are electric-drive and use refrigerant HFC-134a unless otherwise noted \*)

CAPACITY	MODEL and DESCRIPTION	
215 - 380 TR 755 - 1340 kW	<p><b>Model YMC<sup>2</sup> - magnetic centrifugal compressor</b></p> <p><b>Unique Features:</b> 30% less refrigerant, 73 dBA, OptiView™ control panel, OptiSound™ control, OptiSpeed™ variable-speed drive</p> <p><b>Ideal Applications:</b> comfort cooling, facilities requiring low sound levels, green / LEED® buildings</p>	
250 - 3000 TR 880 - 10,550 kW	<p><b>Model YK - centrifugal compressor</b></p> <p><b>Unique Features:</b> OptiSpeed™ variable-speed drive, heat-recovery capability, quick start feature, OptiSound™ control, OptiView™ control panel</p> <p><b>Ideal Applications:</b> comfort cooling, heat-recovery sites, data centers</p>	
2500 - 3500 TR 8800 - 12,000 kW	<p><b>Model YK-EP - centrifugal compressors with economizer</b></p> <p><b>Unique Features:</b> higher efficiency at design and off-design conditions, OptiSpeed™ variable-speed drive, single control panel</p> <p><b>Ideal Applications:</b> district cooling, process / industrial cooling, data centers, turbine inlet-air cooling</p>	
1500 - 6000 TR 5300 - 21,100 kW	<p><b>Model YD - dual centrifugal compressors</b></p> <p><b>Unique Features:</b> smallest footprint per cooling ton in the industry, single OptiView™ control panel</p> <p><b>Ideal Applications:</b> district cooling, retrofits, building additions</p>	
300 - 2500 TR 1050 - 8800 kW	<p><b>Model CYK - compound centrifugal compressors</b></p> <p><b>Unique Features:</b> high-head and heat-pump capability</p> <p><b>Ideal Applications:</b> air-cooled condensing, brine chilling, heat pump, and process / industrial cooling</p>	
700 - 2800 TR 2460 - 9850 kW	<p><b>Model YST - steam-turbine-drive centrifugal compressor *</b></p> <p><b>Unique Features:</b> packaged steam condenser, automatic start-up, OptiView™ control panel</p> <p><b>Ideal Applications:</b> co-generation, hybrid plants</p>	
3000 - 5500 TR 10,550 - 19,350 kW	<p><b>Titan Model OM - centrifugal compressor with electric-motor, steam-turbine, or gas-engine drive *</b></p> <p><b>Unique Features:</b> flexibility, longest life expectancy, easily retrofitted</p> <p><b>Ideal Applications:</b> district cooling, air-cooled condensing, brine chilling, heat pump, and process / industrial cooling</p>	

YORK® MODEL YK  
CENTRIFUGAL CHILLERS

Best route  
to real-world  
energy performance

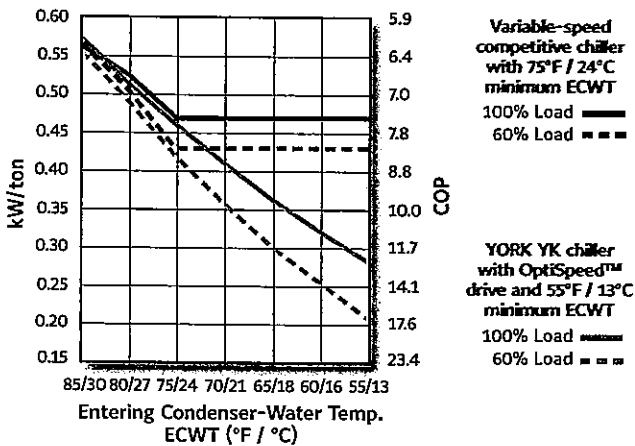


 **YORK®**

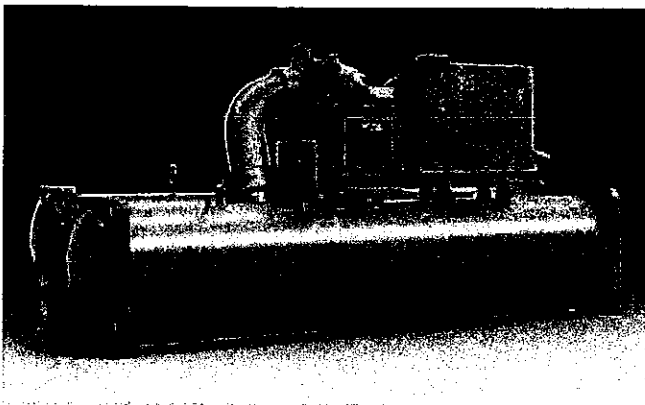
BY JOHNSON CONTROLS



# YORK® YK chillers deliver maximum efficiency



YORK YK chillers can utilize ECWTs as low as 55°F (13°C) to reach 0.20 kW/ton (18 COP) at off-design conditions, reducing instantaneous energy consumption by as much as 50%.



The capacity range of the YORK model YK chiller is 250 to 3,000 TR (880 to 10,540 kW). Both low-voltage (250 to 575 V) and medium-voltage (2,300 to 13,800 V) designs are available.

## Real-world energy performance is essential

YORK® model YK centrifugal chillers, manufactured by Johnson Controls, provide the best route to real-world energy performance – the combined performance at all operating conditions, not just design. Because chillers in the real world operate nearly 99% of the time at off-design conditions, off-design performance is the major factor in energy consumption. That's why YORK centrifugal chillers are engineered for maximum efficiency at both design and off-design conditions.

## Unsurpassed Integrated Part Load Value

The Air-conditioning, Heating, and Refrigeration Institute (AHRI) Chiller Certification Program endorses the validity of off-design analysis to compare chiller energy consumption. Measured with AHRI's Integrated Part Load Value (IPLV), YORK centrifugal chillers are unsurpassed in energy efficiency. Equipped with an OptiSpeed™ variable-speed drive, they can reduce energy usage as low as 0.20 kW/TR at off-design conditions.

## Adaptive capacity control optimizes performance

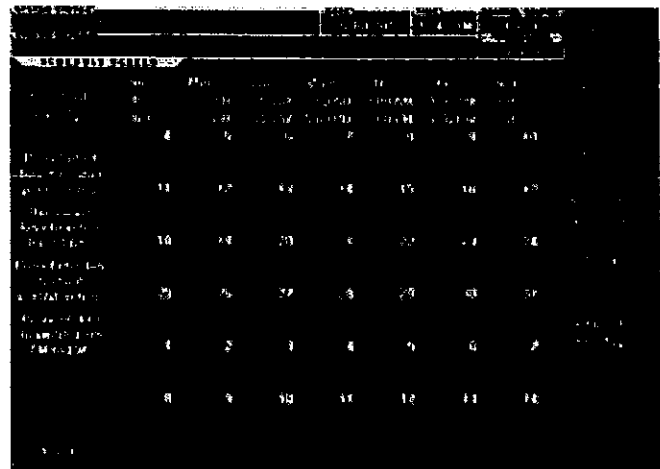
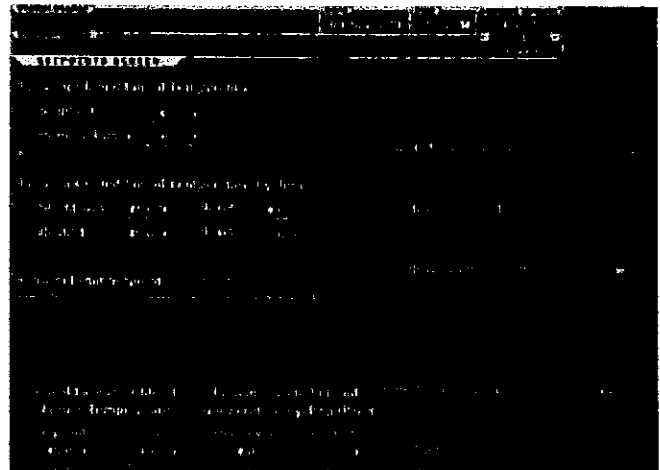
When a YORK YK chiller is equipped with an OptiSpeed drive, it incorporates advanced Adaptive Capacity Control logic, which continually optimizes chiller operation. It closely examines critical operating parameters, and then determines the most efficient way to operate. In addition, it lets you optimize your savings when using intelligent control strategies, such as chilled-water reset. Adaptive Capacity Control logic also accommodates the characteristics of the refrigerant used in the chiller – today and tomorrow.

### Take advantage of colder entering-condenser water

Unlike competitive chillers which require entering condenser-water temperature (ECWT) from the cooling tower to be held artificially high, YORK YK centrifugal chillers can utilize ECWT as low as 55°F (13°C). The lower ECWT reduces the compressor workload, and that can reduce instantaneous energy consumption as much as 50%.

### Powerful control center saves energy

YK chillers feature the OptiView™ Control Center, which uses microprocessor capabilities to save you energy. Operation at just 1° below the designed chilled-water-temperature setpoint can increase chiller energy consumption by as much as 3%, wasting thousands of kilowatt-hours and dollars each year. The digital precision of the OptiView Control Center lets you set chilled-water temperature to a resolution of  $\pm 0.1^\circ$ . As a result, you eliminate the energy wasted by drifting a degree or more from the setpoint. The OptiView Control Center can also be used to schedule daily operating hours and holidays. No longer is energy accidentally wasted cooling the facility when it's not needed.



The OptiView Control Center helps you operate your YORK YK chiller more efficiently by allowing for the precise setting of chilled-water temperature and operating schedule.

# Maximum control with OptiView™ Control Center

## Easy to operate

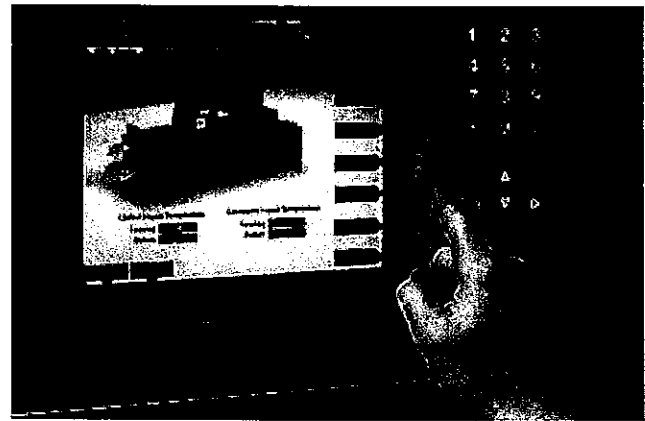
The intuitive, full-color OptiView Control Center offers you a higher level of monitoring and control. Data input is foolproof, and data outputs are shown in association with illustrations of the appropriate chiller components. For convenience, all data can be displayed in eleven different languages, in addition to Imperial or SI units.

## Easy to monitor

The OptiView Control Center allows on-board trending of up to six different values, selected from over 100 variables. The values and sampling interval are all user-selectable. This flexibility allows you to select parameters that are critical for your operation and to perform trending without a BAS interface and separate monitor.

## Easy to integrate

Energy savings and ease-of-use can be fully realized when the HVAC system is an integrated part of the building-automation system. The OptiView Control Center is designed to communicate with the Johnson Controls Metasys® system. It can also communicate with most control systems on the market today using its optional ELink communication card.



Data outputs on the OptiView Control Center are accompanied with an illustration of the appropriate chiller component, making chiller operation more intuitive.



The trending screen provided performance insights not possible with snap shot observations.

# Versatile design provides superior sustainability and flexibility

## Environmental responsibility

The environmental impact of your chiller can be significant. You can reduce your impact by specifying YORK YK chillers. You'll get the benefit of refrigerant HFC-134a, which has zero ozone depletion potential (ODP). Plus, the high efficiency of the chillers reduces the indirect global warming potential (GWP), which is 98% of the total impact, caused by greenhouse-gas emissions produced by your utility to power the chiller. In addition, because of the chillers' high efficiency, your building could earn points for the Optimize Energy Performance (EAc1) credit in the Leadership in Energy and Environmental Design® (LEED) program.

Falling-film technology, utilized in the evaporator of YK chillers, reduces the refrigerant charge by up to 40%. It is available in YK chillers up to about 1,000 TR (based on conditions), and will help your building to qualify for maximum LEED points for Enhanced Refrigerant Management (EA4).

## Reduced noise levels

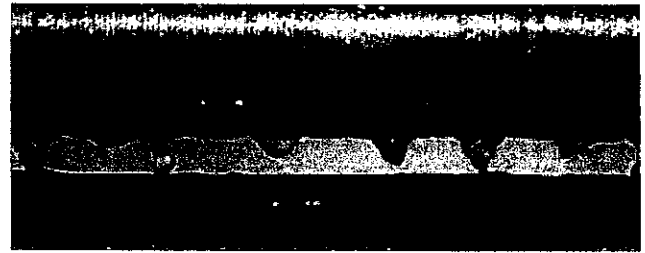
Traditional centrifugal chillers can generate a substantial amount of objectionable noise, but the YORK YK chiller is equipped with the innovative OptiSound™ Control, which reduces noise at off-design conditions. The control continuously monitors the characteristics of the compressor-discharge gas and optimizes the diffuser spacing of the compressor to minimize noisy gas-flow disruptions from the impeller. Chiller operation is also stabilized.

## Flexible heating option

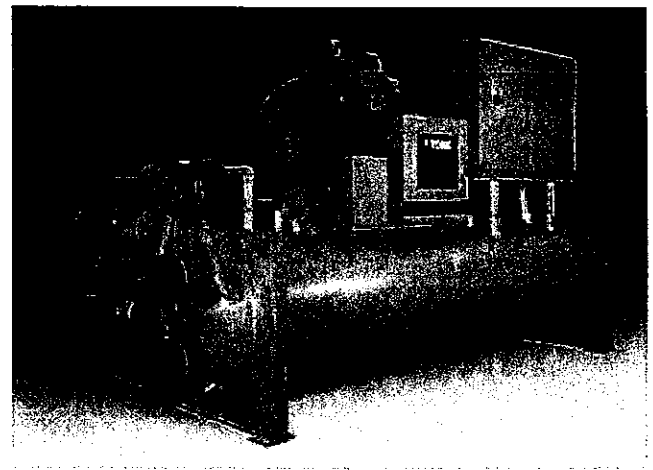
The YORK YK chiller can also be configured as a heat-recovery chiller, for use in facilities with simultaneous heating and cooling requirements. The heat-recovery unit takes advantage of the free heat that is typically rejected by the cooling towers. The heat can be used to control humidity, reheat the air, and preheat domestic hot water. Heat-recovery units have outstanding heating coefficients of performance that can reach up to 11.4.

## Quick restart and return to setpoint

The Quick Start feature available on the YORK YK chiller reduces the risks that temperature-sensitive facilities experience after a power interruption. YK chillers equipped with this feature restart and return to the specified chilled-water temperature faster, reducing the risks of expensive downtime.



A falling-film evaporator is more efficient because refrigerant is sprayed over the tubes, reducing refrigerant charge up to 40%.



The YK chiller is available in a heat-recovery configuration. Recovered heat can be used in the HVAC or domestic hot-water systems.

Photo courtesy of the LTCM lab of the Ecole Polytechnique Fédérale de Lausanne, Switzerland

# Maximum reliability with minimum maintenance

## OptiView Control Center keeps you well-informed

The OptiView Control Center provides complete information on your chiller's operating condition. Safety-shutdown information includes day, time, cause of shutdown and type of restart required. Color-coding of fault messages allows easy determination of chiller status. Yellow messages signify shutdowns with automatic restart, requiring no operator intervention. Red messages are displayed for shutdowns requiring manual restart, alerting the operator that a system check may be required.

The Trending Screen can show changes in motor current, oil temperature and pressure, refrigerant pressures, or water temperatures, all of which can be valuable indicators of developing problems. This capability gives you ample time to take corrective measures before any expensive downtime is incurred. With the OptiView Control Center, you can see when to schedule routine maintenance in advance of actual need.

## Open drive is easy to maintain

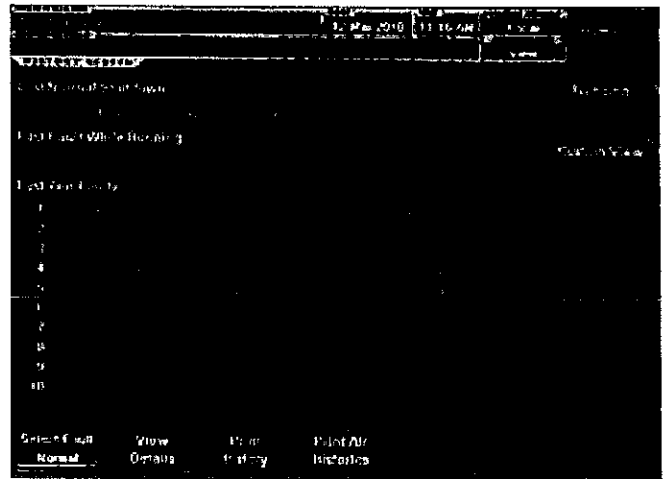
The YORK YK centrifugal chiller uses an open-motor driveline, which means less downtime. If a motor failure occurs, the chiller can be brought back online much faster and at a reduced cost. The motor is easy to remove, and can be repaired at a local motor shop. As a result, downtime due to motor failure is dramatically reduced.

## Electrical protection extends motor life

Equipped with an OptiSpeed drive, the YK chiller starts "softly," never letting the inrush current exceed 100% of the full-load amps. By limiting the inrush, the motor windings do not rub together with expansion, which results in longer motor life and less chiller downtime. Lower inrush also reduces torque stresses on the motor and compressor driveline.

## Start maximizing today

For more information on how YORK YK chillers can deliver real-world energy performance, visit [johnsoncontrols.com](http://johnsoncontrols.com) or contact your Johnson Controls representative.



Color-coded fault messages allow early determination of chiller status and required operator action.

Printed on recycled paper.

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[www.johnsoncontrols.com](http://www.johnsoncontrols.com)

Johnson  
Controls 



DUKE ENERGY  
Mercantile Self Direct Program  
139 East Fourth Street  
Cincinnati, OH 45202  
513 629 5572 fax

June 19, 2014

Graves Quentin  
Proctor & Gamble  
11510 Reed Hartman Hwy  
Blue Ash, OH 45241

Subject: Your Application for a Duke Energy Mercantile Self-Direct Rebate

Dear Mr. Quentin:

Thank you for your Duke Energy Mercantile Self Direct rebate application. As noted in the Energy Conservation Measure (ECM) chart on page two, a total rebate of \$8,466 has been proposed for your Chiller Tune Ups completed in the 2012 and 2013 calendar years. **All Self Direct Rebates are contingent upon approval by the Public Utilities Commission of Ohio (PUCO).**

At your earliest convenience, please indicate if you accept this rebate by

- providing your signature on page two
- completing the PUCO-required affidavit on page three.

Please return the documents to my attention via fax at 513-629-5572 or e-mail to [SelfDirect@Duke-Energy.com](mailto:SelfDirect@Duke-Energy.com). Upon receipt, Duke Energy will submit the necessary documentation to PUCO. Following PUCO's approval, Duke Energy will remit payment.

At Duke Energy, we value your business and look forward to working with you on this and future energy efficiency projects. We hope you will consider our Smart Saver® incentives, when applicable. Please contact me if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads 'Megan Fox'.

Megan Fox  
Product Manager  
Mercantile Self Direct Rebates

cc: Mike Harp, Account Executive

Please indicate your response to this rebate offer within 30 days of receipt.

Rebate is accepted.

Rebate is declined.

By accepting this rebate, Proctor & Gamble affirms its intention to commit and integrate the energy efficiency projects listed on the following pages into Duke Energy's peak demand reduction, demand response and/or energy efficiency programs.

Additionally, Proctor & Gamble also agrees to serve as joint applicant in any future filings necessary to secure approval of this arrangement as required by PUCO and to comply with any information and reporting requirements imposed by rule or as part of that approval.

Finally, Proctor & Gamble affirms that all application information submitted to Duke Energy pursuant to this rebate offer is true and accurate. Information in question would include, but not be limited to, project scope, equipment specifications, equipment operational details, project costs, project completion dates, and the quantity of energy conservation measures installed.

If rebate is accepted, will you use the monies to fund future energy efficiency and/or demand reduction projects?

YES

NO

If rebate is declined, please indicate reason (optional):

Justin Brumby

Quentin Graves

6/26/14

Customer Signature

Printed Name

Date

### Proposed Rebate Amounts

Measure ID	Energy Conservation Measure (ECM)	Proposed Rebate Amount
ECM-1	Air Cooled Chiller Tune Up (Qty. 10,000 tons)	\$3,402.00
ECM-2	Air Cooled Chiller Tune Up (Qty. 4,000 tons)	\$1,333.00
ECM-3	Air Cooled Chiller Tune Up (Qty. 1,200 tons)	\$671.00
ECM-4	Air Cooled Chiller Tune Up (Qty. 80 tons)	\$160.00
ECM-5	Air Cooled Chiller Tune Up (Qty. 2,500 tons)	\$1,320.00
ECM-6	Air Cooled Chiller Tune Up (Qty. 3,000 tons)	\$1,372.00
ECM-7	Air Cooled Chiller Tune Up (Qty. 104 tons)	\$208.00
Total		\$8,466.00



# Public Utilities Commission

Application to Commit  
Energy Efficiency/Peak  
Demand Reduction  
Programs  
(Mercantile Customers  
Only)

Case No.: \_\_\_-\_\_\_-EL-EEC

State of Ohio : **14-1256-EL-EEC**

Quentin Graves, Affiant, being duly sworn according to law, deposes and says that:

- I am the duly authorized representative of:  
Jones Lang LaSalle  
[insert customer or EDU company name and any applicable name(s) doing business as]
- I have personally examined all the information contained in the foregoing application, including any exhibits and attachments. Based upon my examination and inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete.
- I am aware of fines and penalties which may be imposed under Ohio Revised Code Sections 2921.11, 2921.31, 4903.02, 4903.03, and 4903.99 for submitting false information.

Justin Brown Facility Manager  
Signature of Affiant & Title

Sworn and subscribed before me this 27 day of June,  
06/14 Month/Year

April Schnelle  
Signature of official administering oath

April Schnelle / SR. Admin Asst.  
Print Name and Title

My commission expires on 9-24-2017

APRIL L. SCHNELLE  
Notary Public, State of Ohio  
My Commission Expires 09-24-2017





## Ohio Mercantile Self Direct Program

Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

Email this form along with completed Mercantile Self Direct Prescriptive or Custom applications, proof of payment, energy savings calculations and spec sheets to [SelfDirect@Duke-Energy.com](mailto:SelfDirect@Duke-Energy.com). You may also fax to 1-513-629-5572.

Mercantile customers, defined as using at least 700,000 kWh annually or having an account in multiple locations are eligible for the Mercantile Self Direct program. Indicate which applies:

- a single Duke Energy Ohio account with 700,000 kWh annual usage  
 an account with multiple locations

Please list Duke Energy account numbers below (attach listing of multiple accounts and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
2740-0759-01-0	36,000,000		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart \$aver® Custom Incentive. Self Direct rebates are applicable to Prescriptive measures that were installed more than 90 days prior to submission to Duke Energy and have not previously received a Duke Energy Prescriptive rebate.

Self Direct Program rules allow for, though do not require, certain projects that are Prescriptive in nature under the Smart \$aver program to be evaluated using the Custom process in the Self Direct program. Use the list on page two as a guide to determine which Self Direct program best fits your project(s). Apply for Self Direct projects using the appropriate application forms in conjunction with this cover sheet.

Self Direct Program rules also allow for behaviorally based and/or no cost and low cost projects to receive rebates.

Please check each box to indicate completion/inclusion of the following program requirements:

<input checked="" type="checkbox"/> All sections of appropriate application(s) are completed	<input checked="" type="checkbox"/> Proof of payment.*	<input checked="" type="checkbox"/> Manufacturer's Spec sheets	<input type="checkbox"/> Energy model/calculations and detailed inputs for Custom applications
--	--	--	--

\*If a single payment record is intended to demonstrate the costs of both Prescriptive & Custom projects, please include an additional document with an estimated breakout of costs for each Prescriptive and Custom energy conservation measure.

\*\*Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application. Rebates for such projects may be small in magnitude.



Remit to: P.O. Box 701620  
Cincinnati, OH 45270-1620

BILLED BY: JULIE B. #513-527-8137

INVOICE            DATE  
00724526        7/31/13

**CUSTOMER:**

21962  
PAM  
JONES LANG LASALLE AMERICAS-P&G  
ACCOUNTING  
PO BOX 5126  
CINCINNATI, OH 45201-5126  
698-6547

**JOB ADDRESS:**

JLL/P&G / WHBC / CHILLERS-2013/201  
6083 CENTER HILL AVENUE  
CINCINNATI, OH 45224

Customer PO No.: 978771-OP-4014409200

Job Number...: 244453  
Bill Contract: 244453

REFERENCE DESCRIPTION	AMOUNT
JLL P&G @ WHBC / CHILLER CHILLER MAINTENANCE 2013  PREVENTIVE MAINTENANCE	   7,304.00

Now Accepting Visa/MC/AMX for  
Payment of Invoices.  
A Service Charge of 1.5% per Month  
will be charged on All Past Due Accts.

SUB-TOTAL	7,304.00
TAX	474.76
AMOUNT PAID	7,778.76
AMOUNT DUE	.00
FILE            DUE ON RECEIPT	





KY MASTER # M04348  
OH CONTRACTOR # 25061

Page \_\_\_ of \_\_\_

# SERVICE REPORT



Job #: 244453 Date: 01/14/14 Tech: 149 Unit: #2B

Equip/Mfg: YORK Model: YCW277CCO

Serial #: UBKMQ00970

Status:  Complete  Incomplete  Follow-up

Customer Name: R-G Winton Hills / JLL Acct Mgr: \_\_\_\_\_

Site Address: Center Hill

City: Cin State: oh Zip: \_\_\_\_\_

Bill To: James Long Bessler

Equipment Location: Chiller Plant

Purpose of Call: Annual P.M on chillers

Description of Work: P.M on 4 centrifugal chillers and 2 recip chillers  
Completed annual maintenance task sheets

- Lock Out/Tag Out
- LO/TO Permit
- Ladder (Tie Off)
- Lifting Eqpt/Manpower
- PPE Hard Hat, Glasses
- Fall Protection
- Proper GFCI Usage
- Hot Work
- Fire Alarm Syst Disabled
- Hot Work Permit
- Fire Watch
- Explosion
- Chemical Hazard
- Customer Site Specific
- Confined Space Entry
- CSE Permit
- 70E Elect PPE
- Air Quality Monitor
- Appropriate PPE
- Other \_\_\_\_\_

\*Recommendations: Glycol chiller #2, has broken  
high pressure switch on compressor #1  
need 36" wire leads

Quantities				Part Number	DeBra-Kuempel P.O. #	Material / Rental / Tool Description
Cash	Truck	Shop	Pur. Order			
		5 gal				5 gal York Startal Coolant

### Technical Reports Completed:

- AC Check Out
- Refrig. Check Out
- Refrig. Job Site Rpt.
- Heating Check Out
- Add. Material Rpt.
- Start Up Rpt.
- Comp. Failure

Tech	Date	Hours	Rate
<u>Ed Maddox</u>	<u>1-14</u>	<u>7.5</u>	<u>X1</u>
<u>Ed Maddox</u>	<u>1-15</u>	<u>8</u>	<u>X1</u>

### Tool Usage:

- Vac. Pump
- Comb. Analyzer
- Torch
- Rec. Unit
- Crane
- Lift
- Auger
- Sewer Camera
- Other \_\_\_\_\_

# of Deliveries to Job:

Authorized Signature: \_\_\_\_\_ Customer P.O.#: \_\_\_\_\_ Total: \_\_\_\_\_

I have authority to order this work; which has been satisfactorily performed. I agree to the terms and conditions described on the reverse side.

**Cincinnati**  
3976 Southern Ave. • Cincinnati, OH 45227  
513.271.6500

**Dayton**  
1948 W. Dorothy Ln. • Dayton, OH 45439  
937.531.5455

**Maysville**  
702 Parker Dr. • Maysville, KY 41056  
606.536.8805

**Louisville**  
3600 Chamberlain Drive, Suite 358 • Louisville, KY 40241  
502.368.0454

**24 Hour Service 513.271.6500**  
OFFICE

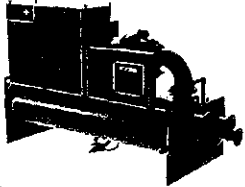
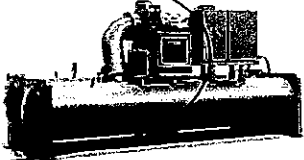
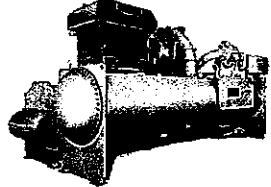
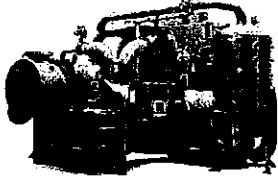
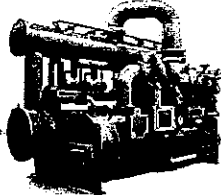
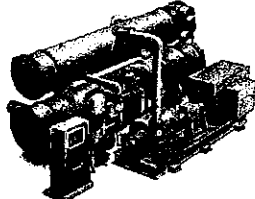


# YORK®

## Water-Cooled Chillers

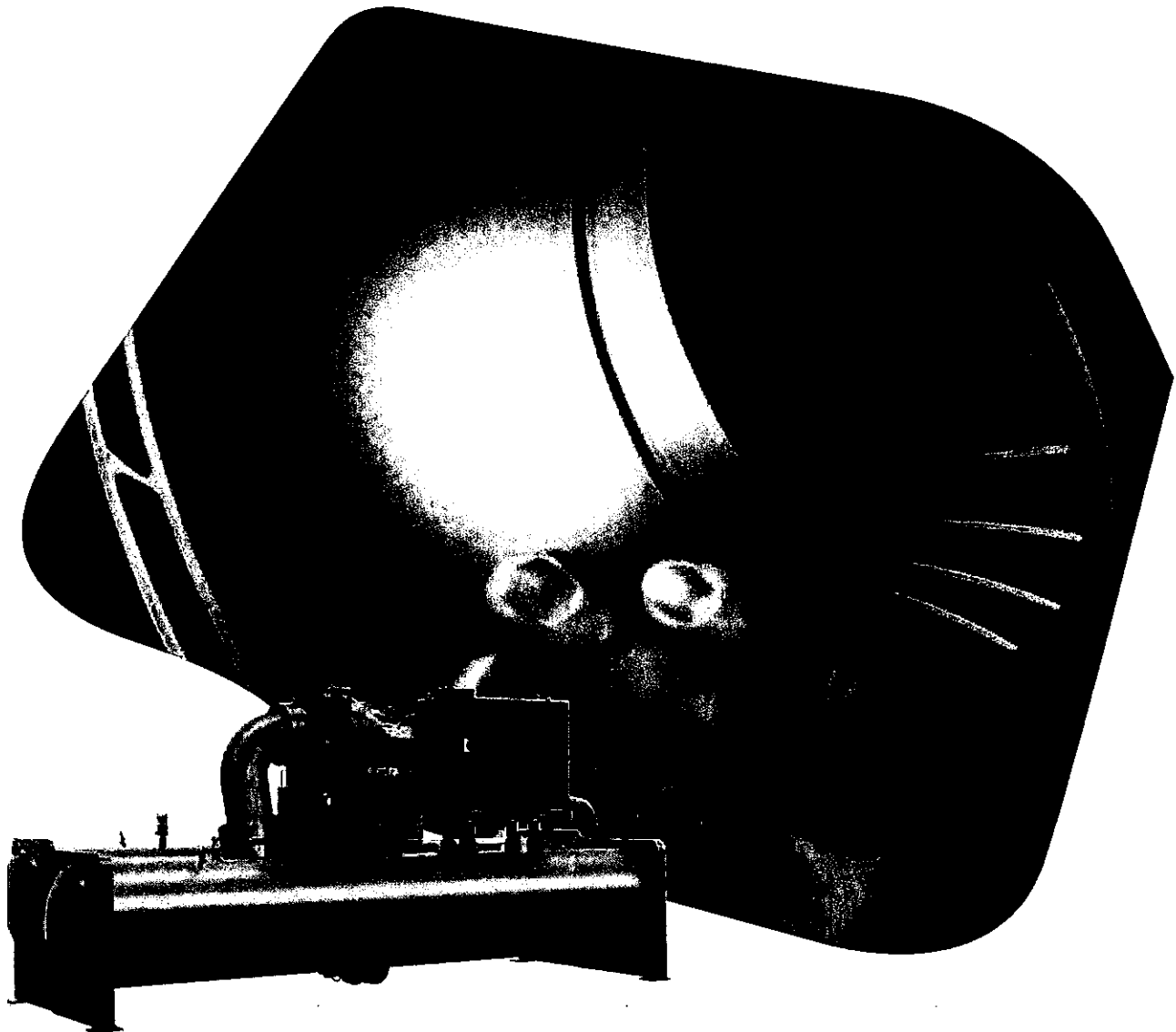


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CAPACITY	MODEL and DESCRIPTION	
215 - 380 TR 755 - 1340 kW	<b>Model YMC<sup>2</sup> - magnetic centrifugal compressor</b> <b>Unique Features:</b> 30% less refrigerant, 73 dBA, OptiView™ control panel, OptiSound™ control, OptiSpeed™ variable-speed drive <b>Ideal Applications:</b> comfort cooling, facilities requiring low sound levels, green / LEED® buildings	
250 - 3000 TR 880 - 10,550 kW	<b>Model YK - centrifugal compressor</b> <b>Unique Features:</b> OptiSpeed™ variable-speed drive, heat-recovery capability, quick start feature, OptiSound™ control, OptiView™ control panel <b>Ideal Applications:</b> comfort cooling, heat-recovery sites, data centers	
2500 - 3500 TR 8800 - 12,000 kW	<b>Model YK-EP - centrifugal compressors with economizer</b> <b>Unique Features:</b> higher efficiency at design and off-design conditions, OptiSpeed™ variable-speed drive, single control panel <b>Ideal Applications:</b> district cooling, process / industrial cooling, data centers, turbine inlet-air cooling	
1500 - 6000 TR 5300 - 21,100 kW	<b>Model YD - dual centrifugal compressors</b> <b>Unique Features:</b> smallest footprint per cooling ton in the industry, single OptiView™ control panel <b>Ideal Applications:</b> district cooling, retrofits, building additions	
300 - 2500 TR 1050 - 8800 kW	<b>Model CYK - compound centrifugal compressors</b> <b>Unique Features:</b> high-head and heat-pump capability <b>Ideal Applications:</b> air-cooled condensing, brine chilling, heat pump, and process / industrial cooling	
700 - 2800 TR 2460 - 9850 kW	<b>Model YST - steam-turbine-drive centrifugal compressor *</b> <b>Unique Features:</b> packaged steam condenser, automatic start-up, OptiView™ control panel <b>Ideal Applications:</b> co-generation, hybrid plants	
3000 - 5500 TR 10,550 - 19,350 kW	<b>Titan Model OM - centrifugal compressor with electric-motor, steam-turbine, or gas-engine drive *</b> <b>Unique Features:</b> flexibility, longest life expectancy, easily retrofitted <b>Ideal Applications:</b> district cooling, air-cooled condensing, brine chilling, heat pump, and process / industrial cooling	

YORK® MODEL YK  
CENTRIFUGAL CHILLERS

Best route  
to real-world  
energy performance

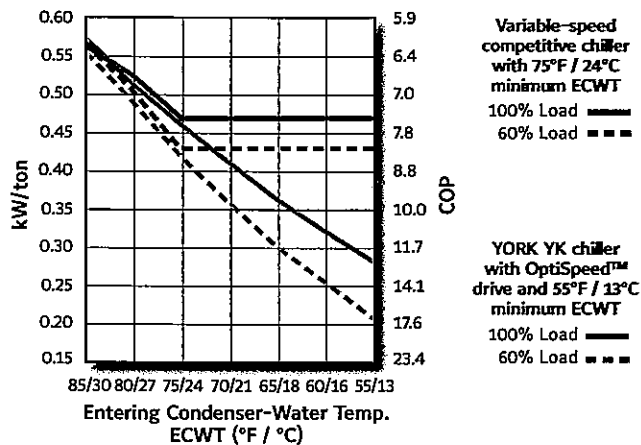


 **YORK®**

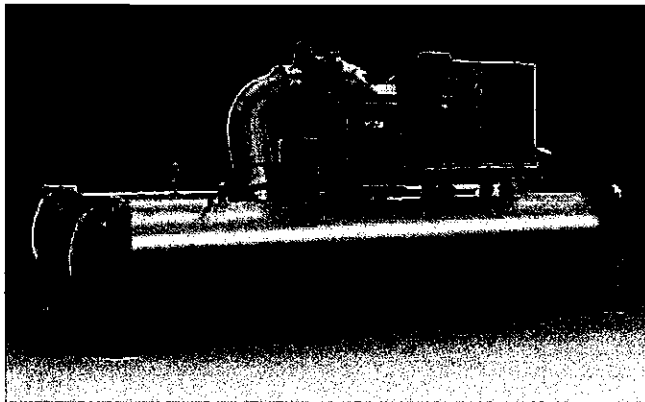
BY JOHNSON CONTROLS



# YORK® YK chillers deliver maximum efficiency



YORK YK chillers can utilize ECWTs as low as 55°F (13°C) to reach 0.20 kW/ton (18 COP) at off-design conditions, reducing instantaneous energy consumption by as much as 50%.



The capacity range of the YORK model YK chiller is 250 to 3,000 TR (880 to 10,540 kW). Both low-voltage (250 to 575 V) and medium-voltage (2,300 to 13,800 V) designs are available.

## Real-world energy performance is essential

YORK® model YK centrifugal chillers, manufactured by Johnson Controls, provide the best route to real-world energy performance – the combined performance at all operating conditions, not just design. Because chillers in the real world operate nearly 99% of the time at off-design conditions, off-design performance is the major factor in energy consumption. That's why YK centrifugal chillers are engineered for maximum efficiency at both design and off-design conditions.

## Unsurpassed Integrated Part Load Value

The Air-conditioning, Heating, and Refrigeration Institute (AHRI) Chiller Certification Program endorses the validity of off-design analysis to compare chiller energy consumption. Measured with AHRI's Integrated Part Load Value (IPLV), YK centrifugal chillers are unsurpassed in energy efficiency. Equipped with an OptiSpeed™ variable-speed drive, they can reduce energy usage as low as 0.20 kW/TR at off-design conditions.

## Adaptive capacity control optimizes performance

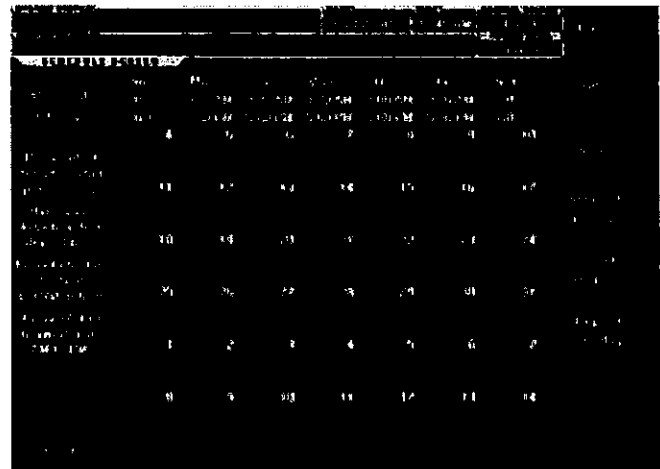
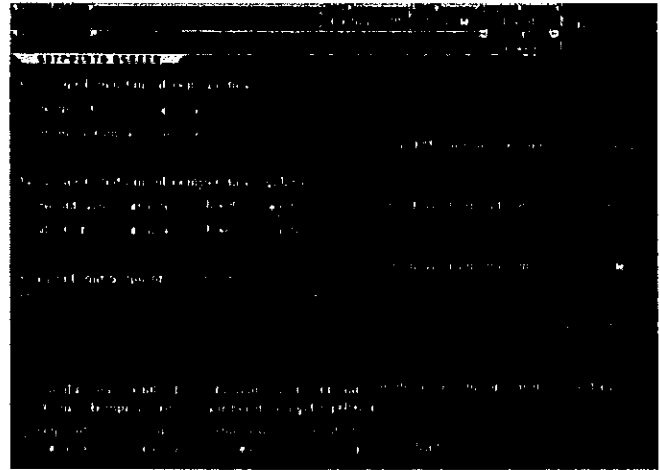
When a YORK YK chiller is equipped with an OptiSpeed drive, it incorporates advanced Adaptive Capacity Control logic, which continually optimizes chiller operation. It closely examines critical operating parameters, and then determines the most efficient way to operate. In addition, it lets you optimize your savings when using intelligent control strategies, such as chilled-water reset. Adaptive Capacity Control logic also accommodates the characteristics of the refrigerant used in the chiller – today and tomorrow.

### Take advantage of colder entering-condenser water

Unlike competitive chillers which require entering condenser-water temperature (ECWT) from the cooling tower to be held artificially high, YORK YK centrifugal chillers can utilize ECWT as low as 55°F (13°C). The lower ECWT reduces the compressor workload, and that can reduce instantaneous energy consumption as much as 50%.

### Powerful control center saves energy

YK chillers feature the OptiView™ Control Center, which uses microprocessor capabilities to save you energy. Operation at just 1° below the designed chilled-water-temperature setpoint can increase chiller energy consumption by as much as 3%, wasting thousands of kilowatt-hours and dollars each year. The digital precision of the OptiView Control Center lets you set chilled-water temperature to a resolution of  $\pm 0.1^\circ$ . As a result, you eliminate the energy wasted by drifting a degree or more from the setpoint. The OptiView Control Center can also be used to schedule daily operating hours and holidays. No longer is energy accidentally wasted cooling the facility when it's not needed.



The OptiView Control Center helps you operate your YORK YK chiller more efficiently by allowing for the precise setting of chilled-water temperature and operating schedule.

# Maximum control with OptiView™ Control Center

## Easy to operate

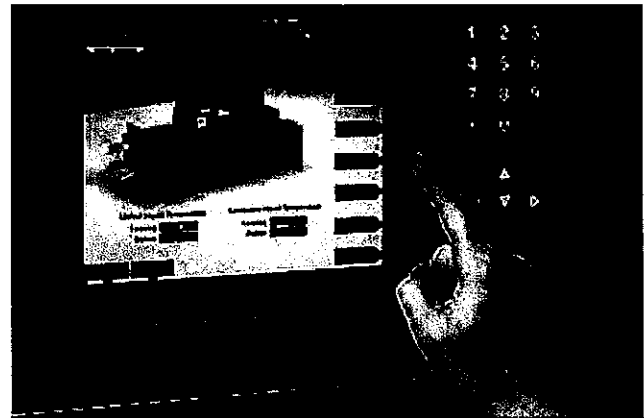
The intuitive, full-color OptiView Control Center offers you a higher level of monitoring and control. Data input is foolproof, and data outputs are shown in association with illustrations of the appropriate chiller components. For convenience, all data can be displayed in eleven different languages, in addition to Imperial or SI units.

## Easy to monitor

The OptiView Control Center allows on-board trending of up to six different values, selected from over 100 variables. The values and sampling interval are all user-selectable. This flexibility allows you to select parameters that are critical for your operation and to perform trending without a BAS interface and separate monitor.

## Easy to integrate

Energy savings and ease-of-use can be fully realized when the HVAC system is an integrated part of the building-automation system. The OptiView Control Center is designed to communicate with the Johnson Controls Metasys® system. It can also communicate with most control systems on the market today using its optional ELink communication card.



Data outputs on the OptiView Control Center are accompanied with an illustration of the appropriate chiller component, making chiller operation more intuitive.



The trending screen provided performance insights not possible with snap shot observations.

# Versatile design provides superior sustainability and flexibility

## Environmental responsibility

The environmental impact of your chiller can be significant. You can reduce your impact by specifying YORK YK chillers. You'll get the benefit of refrigerant HFC-134a, which has zero ozone depletion potential (ODP). Plus, the high efficiency of the chillers reduces the indirect global warming potential (GWP), which is 98% of the total impact, caused by greenhouse-gas emissions produced by your utility to power the chiller. In addition, because of the chillers' high efficiency, your building could earn points for the Optimize Energy Performance (EAc1) credit in the Leadership in Energy and Environmental Design® (LEED) program.

Falling-film technology, utilized in the evaporator of YK chillers, reduces the refrigerant charge by up to 40%. It is available in YK chillers up to about 1,000 TR (based on conditions), and will help your building to qualify for maximum LEED points for Enhanced Refrigerant Management (EAc4).

## Reduced noise levels

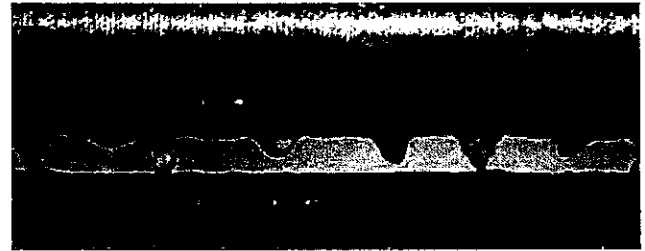
Traditional centrifugal chillers can generate a substantial amount of objectionable noise, but the YORK YK chiller is equipped with the innovative OptiSound™ Control, which reduces noise at off-design conditions. The control continuously monitors the characteristics of the compressor-discharge gas and optimizes the diffuser spacing of the compressor to minimize noisy gas-flow disruptions from the impeller. Chiller operation is also stabilized.

## Flexible heating option

The YORK YK chiller can also be configured as a heat-recovery chiller, for use in facilities with simultaneous heating and cooling requirements. The heat-recovery unit takes advantage of the free heat that is typically rejected by the cooling towers. The heat can be used to control humidity, reheat the air, and preheat domestic hot water. Heat-recovery units have outstanding heating coefficients of performance that can reach up to 11.4.

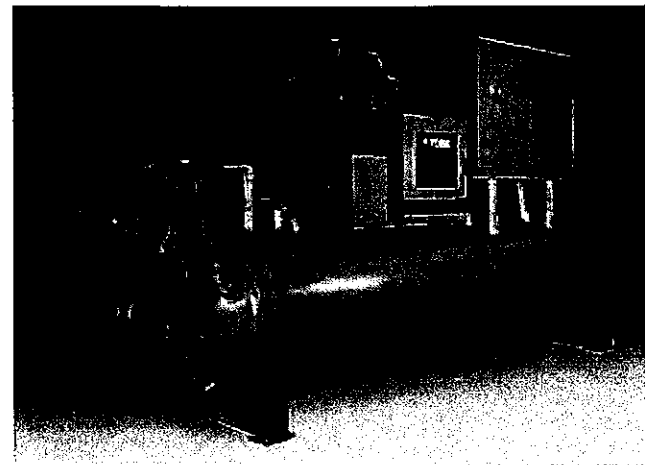
## Quick restart and return to setpoint

The Quick Start feature available on the YORK YK chiller reduces the risks that temperature-sensitive facilities experience after a power interruption. YK chillers equipped with this feature restart and return to the specified chilled-water temperature faster, reducing the risks of expensive downtime.



A falling-film evaporator is more efficient because refrigerant is sprayed over the tubes, reducing refrigerant charge up to 40%.

Photo courtesy of the LTCM lab of the Ecole Polytechnique Fédérale de Lausanne, Switzerland



The YK chiller is available in a heat-recovery configuration. Recovered heat can be used in the HVAC or domestic hot-water systems.

# Maximum reliability with minimum maintenance

## OptiView Control Center keeps you well-informed

The OptiView Control Center provides complete information on your chiller's operating condition. Safety-shutdown information includes day, time, cause of shutdown and type of restart required. Color-coding of fault messages allows easy determination of chiller status. Yellow messages signify shutdowns with automatic restart, requiring no operator intervention. Red messages are displayed for shutdowns requiring manual restart, alerting the operator that a system check may be required.

The Trending Screen can show changes in motor current, oil temperature and pressure, refrigerant pressures, or water temperatures, all of which can be valuable indicators of developing problems. This capability gives you ample time to take corrective measures before any expensive downtime is incurred. With the OptiView Control Center, you can see when to schedule routine maintenance in advance of actual need.

## Open drive is easy to maintain

The YORK YK centrifugal chiller uses an open-motor driveline, which means less downtime. If a motor failure occurs, the chiller can be brought back online much faster and at a reduced cost. The motor is easy to remove, and can be repaired at a local motor shop. As a result, downtime due to motor failure is dramatically reduced.

## Electrical protection extends motor life

Equipped with an OptiSpeed drive, the YK chiller starts "softly," never letting the inrush current exceed 100% of the full-load amps. By limiting the inrush, the motor windings do not rub together with expansion, which results in longer motor life and less chiller downtime. Lower inrush also reduces torque stresses on the motor and compressor driveline.

## Start maximizing today

For more information on how YORK YK chillers can deliver real-world energy performance, visit [johnsoncontrols.com](http://johnsoncontrols.com) or contact your Johnson Controls representative.



Color-coded fault messages allow early determination of chiller status and required operator action.

Printed on recycled paper.

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[www.johnsoncontrols.com](http://www.johnsoncontrols.com)

Johnson  
Controls 



**PACKAGED LIQUID CHILLERS  
WATER COOLED & REMOTE-RECIPROCATING  
HERMETIC**

RENEWAL PARTS

Supersedes: Nothing

795

FORM 150.55-RP3

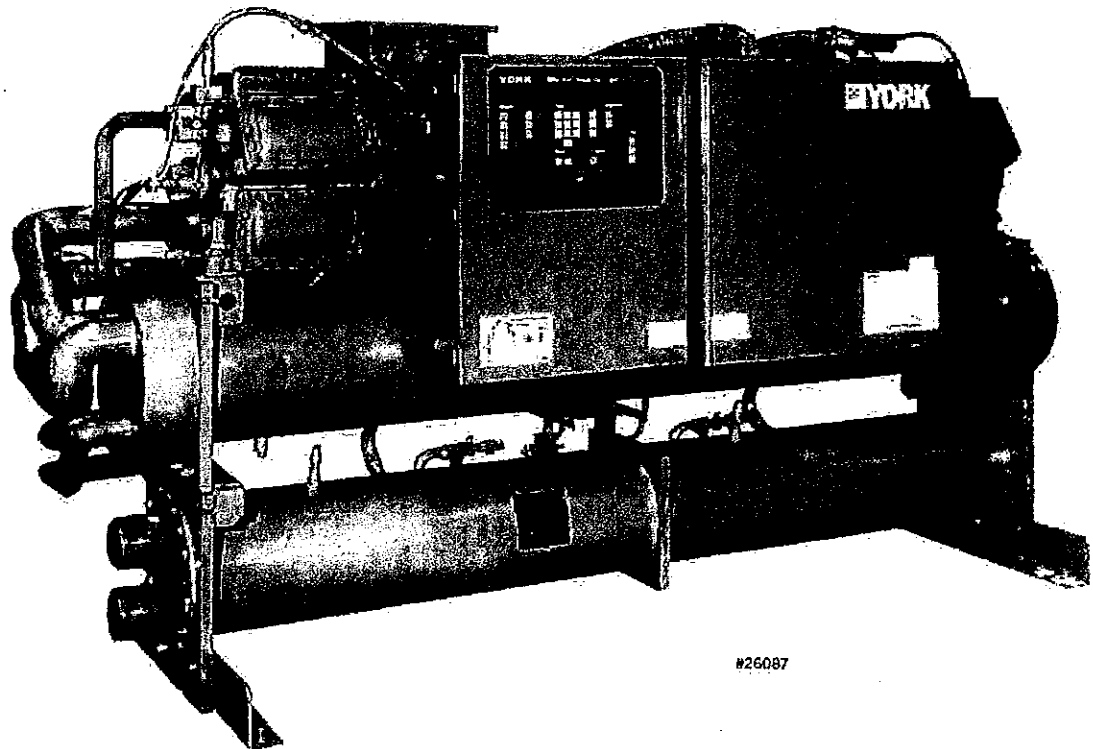
**WATER COOLED MODELS**

YCWZ33AB, YCWZ44AB, YCWZ47CC, YCWZ77CC,  
YCWZ88CC, YCWZ88HD, YCWZ89HD, YCWZ99HD

**REMOTE CONDENSER MODELS**

YCRZ33AO, YCRZ44AO, YCRZ47CO, YCRZ77CO,  
YCRZ88CO, YCRZ88HO, YCRZ89HO, YCRZ99HO

**STYLE A  
50 & 60 HZ**



#26087

# WARNING

**HIGH VOLTAGE**  
**is used in the operation of this equipment**  
**DEATH OR SERIOUS INJURY**  
**may result if personnel fail to observe precautions.**

Work on electronic equipment should not be undertaken unless the individual(s) has (have) been trained

in the proper maintenance of the equipment and is (are) familiar with its potential hazards.

Shut off power supply to equipment before beginning work and follow lockout procedures. When working inside equipment with power off, take special care to discharge every capacitor likely to hold dangerous potential.

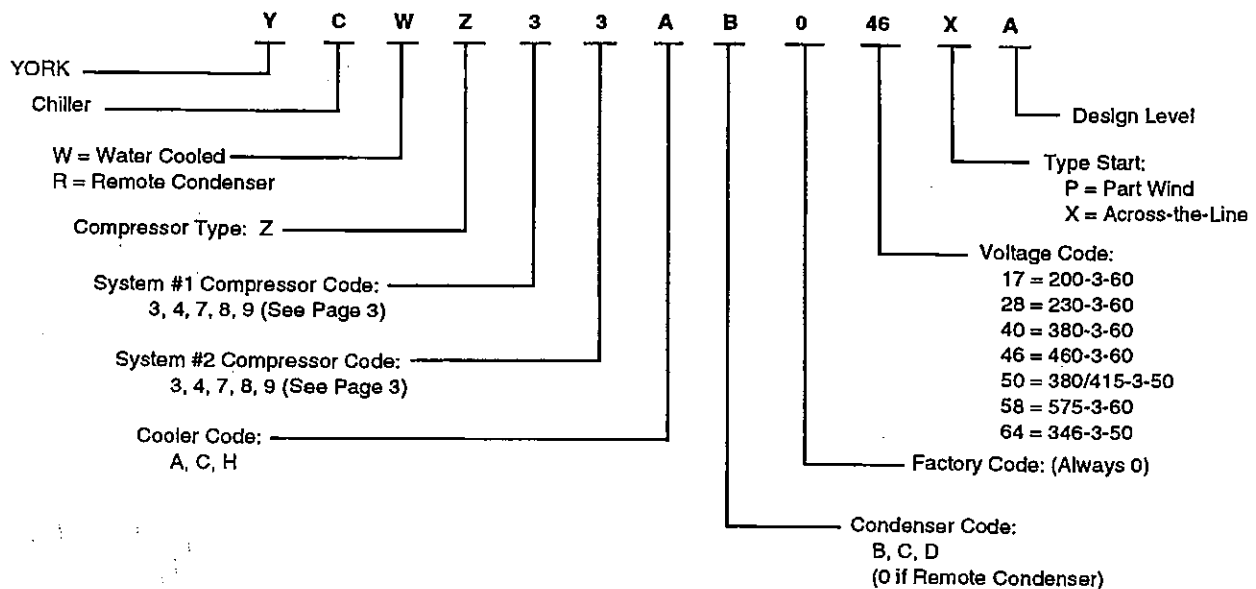
Be careful not to contact high voltage connections when installing or operating this equipment.

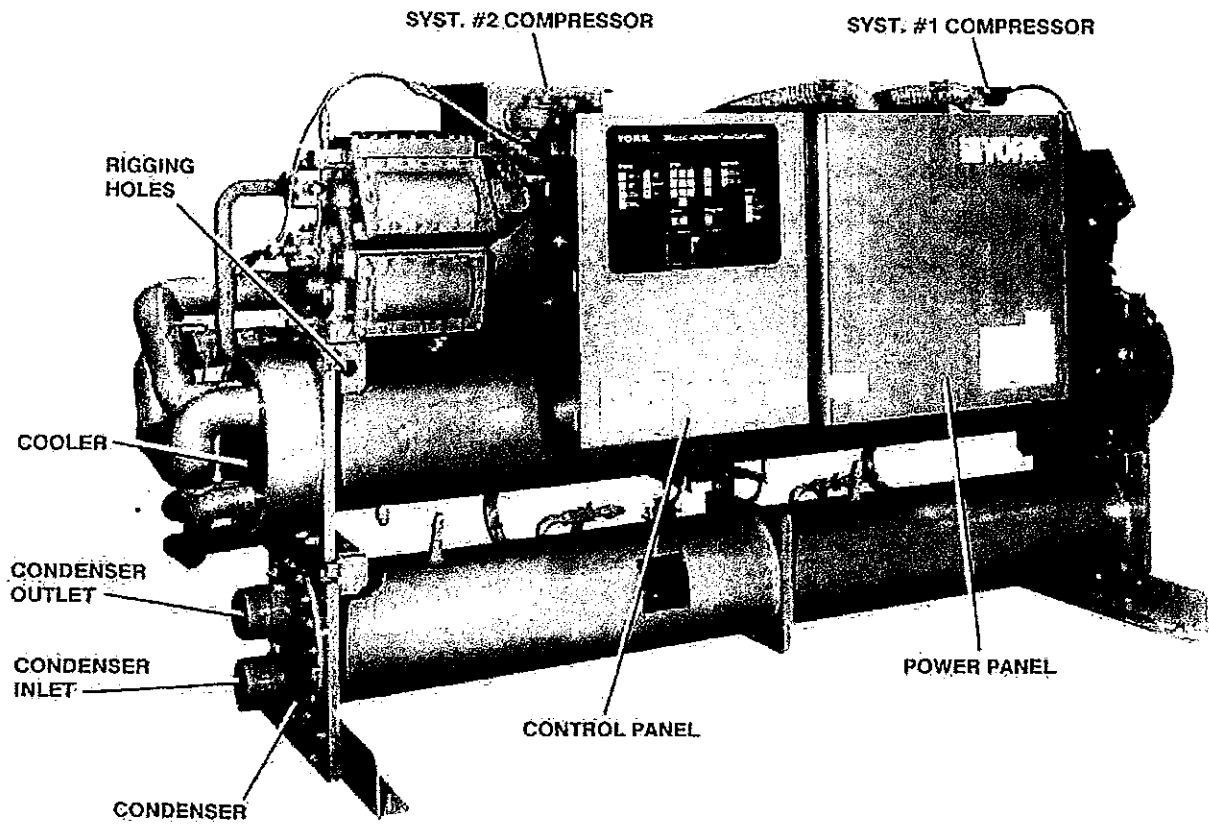
## LOW VOLTAGE

**DO NOT** be misled by the term "low voltage".  
 Voltages as low as 50 volts may cause death.

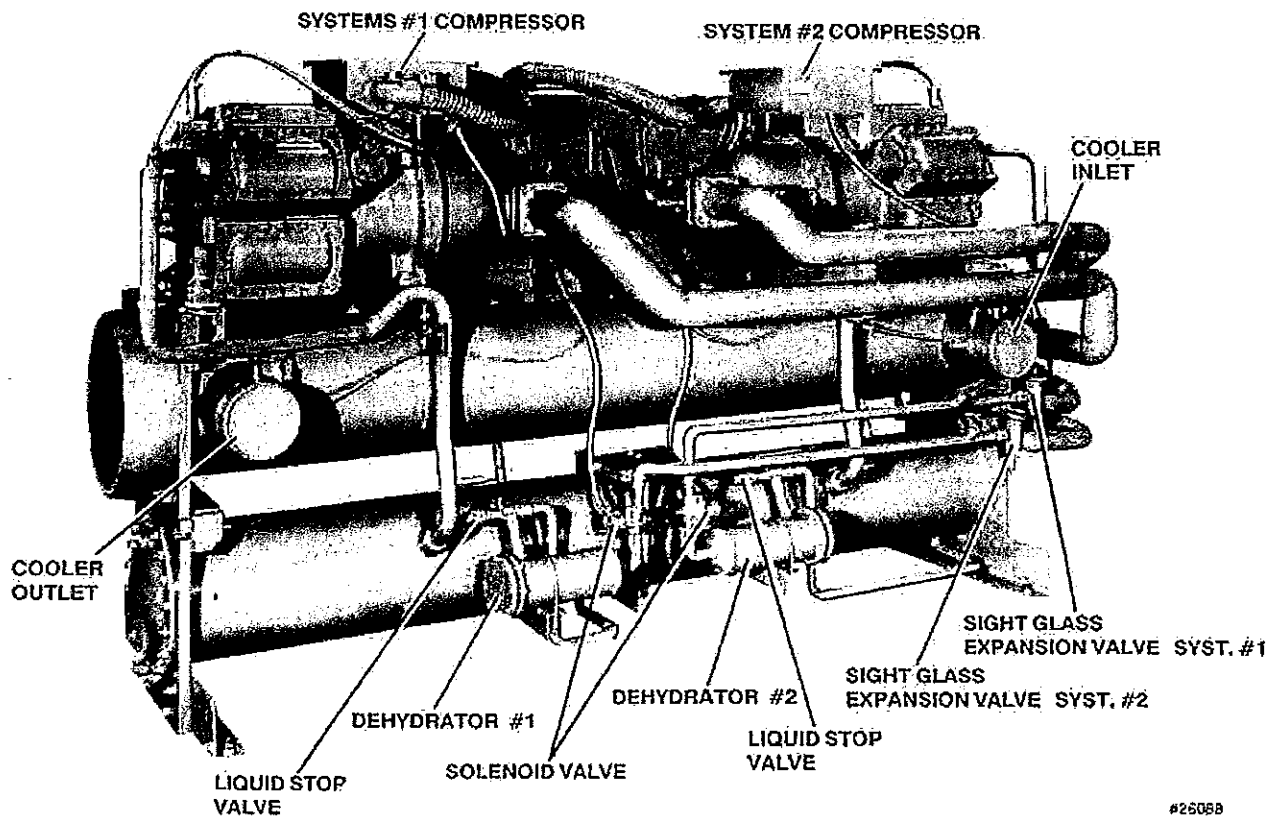
## NOMENCLATURE

The model number denotes the following characteristics of the unit:





#26087

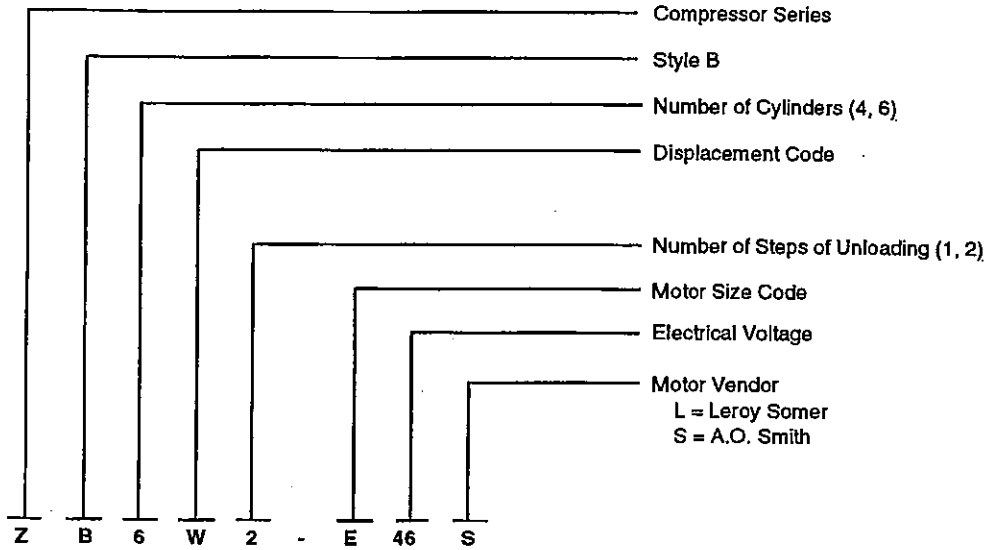


#26088

### MAJOR UNIT COMPONENTS



## COMPRESSOR NOMENCLATURE



### COMPRESSOR MODEL NUMBERS (WATER COOLED AND REMOTE CONDENSER UNIT MODELS)

UNIT MODEL		YCWZ33AB YCRZ33AO	YCWZ44AB YCRZ44AO	YCWZ47CC YCRZ47CO	YCWZ77CC YCRZ77CO
COMPRESSOR MODEL	SYSTEM NO. 1	ZB4K1-B	ZB4M1-C	ZB4M1-C	ZB6S2-D
	SYSTEM NO. 2	ZB4K1-B	ZB4M1-C	ZB6S2-D	ZB6S2-D
UNIT MODEL		YCWZ88CC YCRZ88CO	YCWZ88HD YCRZ88HO	YCWZ89HD YCRZ89HO	YCWZ99HD YCRZ99HO
COMPRESSOR MODEL	SYSTEM NO. 1	ZB6W2-E	ZB6W2-E	ZB6W2-E	ZB6AE2-E
	SYSTEM NO. 2	ZB6W2-E	ZB6W2-E	ZB6AE2-E	ZB6AE2-E

For replacement compressors and/ or parts, refer to Form 180.45-RP2.  
 Remanufactured compressors are available from the Wheeling, Illinois manufacturing facility.  
 Contact the local YORK Applied Systems Office.

**<sup>S</sup>COMPRESSOR MOTOR CONTACTORS**

VOLTAGE CODE	TYPE START	SYSTEM	UNIT MODEL			
			YCWZ33AB YCRZ33AO	YCWZ44AB YCRZ44AO	YCWZ47CC YCRZ47CO	YCWZ77CC YCRZ77CO
-17	A	1, 2	-	-	-	-
	P	1, 2	024-25551	024-25551	024-25550	024-25550
-28	A	1, 2	-	-	-	-
	P	1, 2	024-25551	024-25551	024-25550	024-25550
-40	A	1, 2	024-25551	024-25551	024-25549	024-25549
	P	1, 2	024-25551	024-25551	024-25549	024-25549
-46	A	1, 2	024-25551	024-25551	024-25551	024-25551
	P	1, 2	024-25551	024-25551	024-25551	024-25551
-50	A	1, 2	024-25551	024-25551	024-25551	024-25551
	P	1, 2	024-25551	024-25551	024-25551	024-25551
-58	A	1, 2	024-25551	024-25551	024-25551	024-25551
	P	1, 2	024-25551	024-25551	024-25551	024-25551
-64	A	1, 2	024-25551	024-25551	024-25550	024-25550
	P	1, 2	024-25551	024-25551	024-25550	024-25550

VOLTAGE CODE	TYPE START	SYSTEM	UNIT MODEL			
			YCWZ88CC YCRZ88CO	YCWZ88HD YCRZ88HO	YCWZ89HD YCRZ89HO	YCWZ99HD YCRZ99HO
-17	A	1, 2	-	-	-	-
	P	1, 2	024-25549	024-25549	024-25549	024-25549
-28	A	1, 2	-	-	-	-
	P	1, 2	024-25549	024-25549	024-25549	024-25549
-40	A	1, 2	024-25549	024-25549	024-25549	024-25549
	P	1, 2	024-25549	024-25549	024-25549	024-25549
-46	A	1, 2	024-25550	024-25550	024-25549	024-25549
	P	1, 2	024-25550	024-25550	024-25549	024-25549
-50	A	1, 2	024-25550	024-25550	024-25549	024-25549
	P	1, 2	024-25550	024-25550	024-25549	024-25549
-58	A	1, 2	024-25550	024-25550	024-25550	024-25550
	P	1, 2	024-25550	024-25550	024-25550	024-25550
-64	A	1, 2	024-25549	024-25549	024-25549	024-25549
	P	1, 2	024-25549	024-25549	024-25549	024-25549

## NOTES:

<sup>s</sup> = Recommended Stock Spare Parts

P = Part Winding

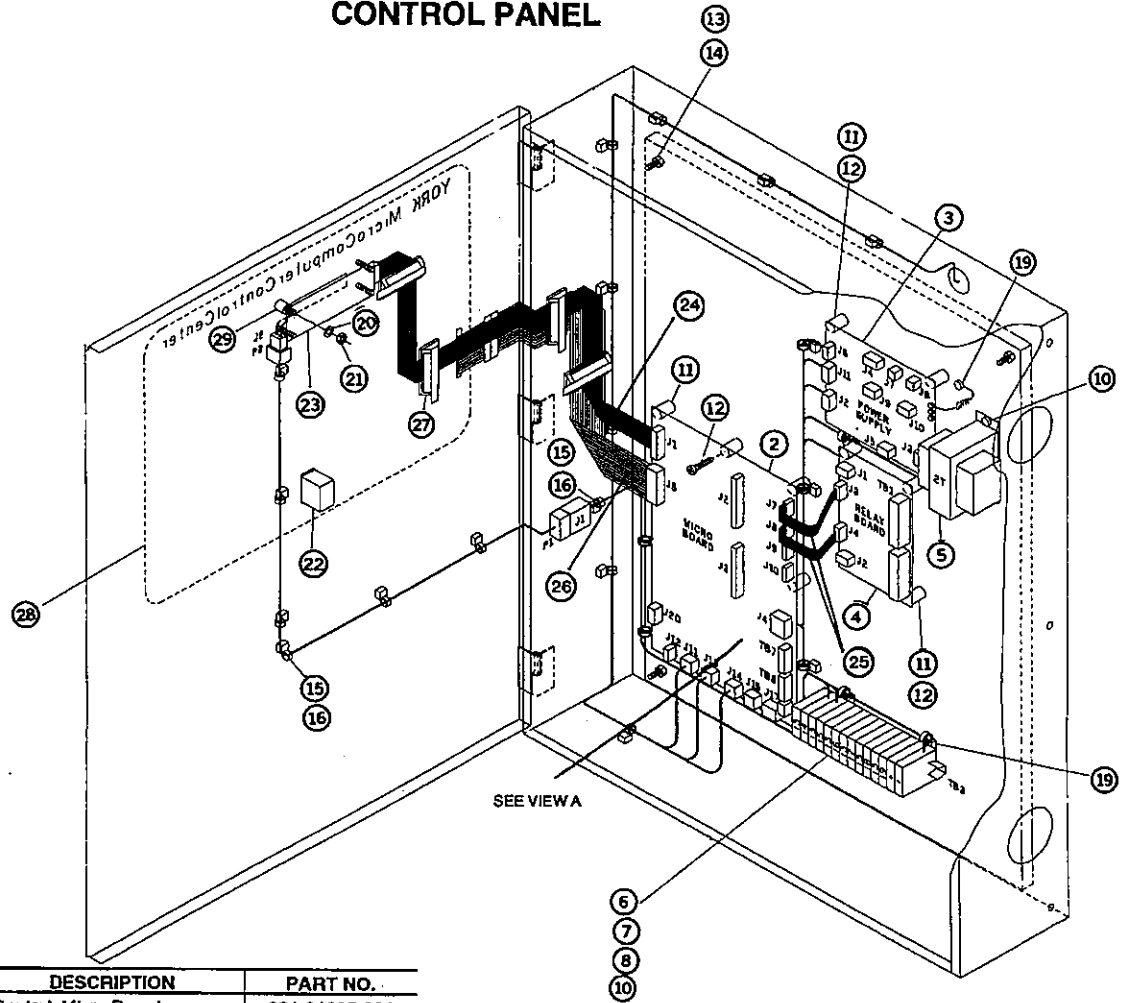
Part Winding (Start) compressors require two (2) contactors per compressor (system).

A = Across-the-Line

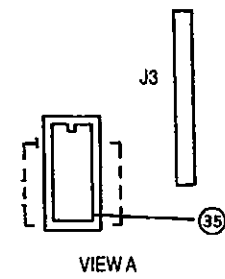
Across-the-Line (Start) compressors require one (1) contactor per compressor (system).

Contactors include suppressors.

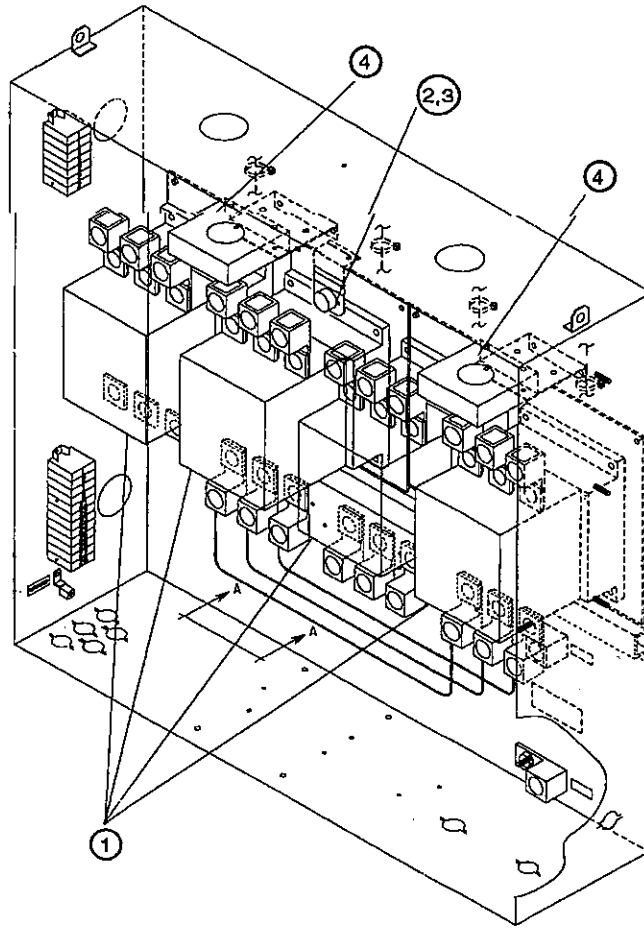
# CONTROL PANEL



ITEM	QTY/UNIT	DESCRIPTION	PART NO.
2	1	Control, Micro Board	031-01095-001
3	1	Control, Power Supply	031-01094-000
4	1	Control, Relay Board	031-01093-000
5	1	Transformer, Control	025-27911-000
6	14	Block, Terminal	025-20945-000
7	1	End, Terminal Block	025-20946-000
8	1	Strip, Marker (14 Pole)	025-29159-000
10	5	Scr., Tap TH. #8 x 3/8 Lg	021-13783-000
11	16	Nut, Expansion	021-14661-000
12	16	Scr., Tap Pan Hd. #8 x 1-1/4	021-14667-000
13	4	Lock Washer, TH. Int. 3/8	021-01155-000
14	4	Nut, Hex 3/8 UNC-2B	021-00467-000
15	15	Lock Washer, TH. Int. #10	021-01137-000
16	15	Nut, Hex #10-24	021-08282-000
17	3	Hsg., Connr. Plug, Mini-Univ. 1	025-28383-000
18	1	Harness, Hinged Panel 1	571-01226-212
19	12	Scr., Tap, Pan Hd. #10 x 1/2	021-13789-000
20	4	Lock Washer, Hel. Spg. #4	021-17576-000
21	4	Nut, Hex #4-40	021-10056-000
22	1	Switch, Unit ON/OFF	024-25517-000
23	1	Display, LCD	031-01110-000
24	1	Ribbon Cable	031-01109-211
25	2	Ribbon Cable	031-01109-212
26	4	Ribbon Cable	031-01109-213
27	3	Clamp, Ribbon Wlre	025-25156-000
28	1	Switch, Keypad	024-25504-000
29	4	Spacer, Nylon 7/16 Lg.	021-17575-000
32-1	1	Harness, Sensor - Suct. #1 2	371-01263-231
32-2	1	Harness, Sensor - Oil #1 2	371-01263-233
32-3	1	Harness, Sensor - Suct. #2 2	371-01263-232
32-4	1	Harness, Sensor - Oil #2 2	371-01263-234
32-5	1	Harness, Sensor - LWT 2	371-01263-241
32-6	1	Harness, Sensor - EWT 2	371-01263-242
33	1	Lable, Caution 1	035-03908-000
34	1	Strap, Cable 1	025-18167-000
35	1	EPROM	031-01096-001
36	3	Suppressor for Options 3	031-00808-000



NOTES:  
 S = Recommended Stock Spare Parts  
 1. Not Shown  
 2. Not Shown. Sensor Harness without Sensor.  
 3. Not shown, shipped loose for field use to place across the coil of any relay or contactor connected to the Control Panel or its 115VAC Power Supply including the application of:  
 • Alarm Circuit Relays  
 • Pump Starter (Contactor)  
 • Flow Switch Inputs  
 • BAS Inputs

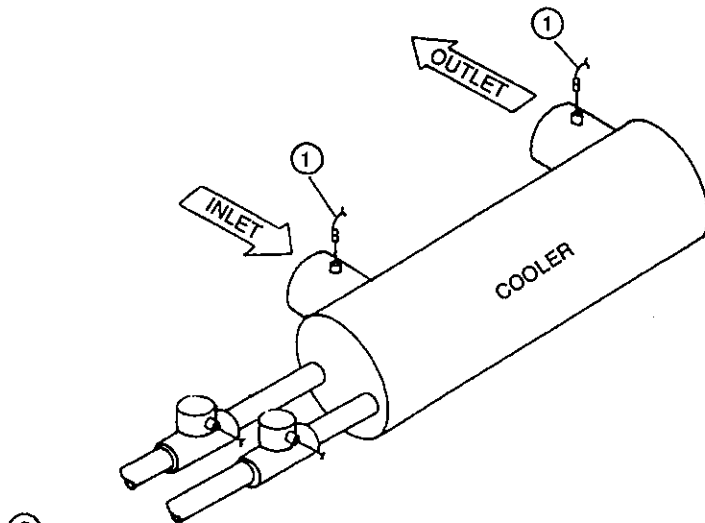


**POWER PANEL**  
(SHOWN IS FOR PART-WINDING STARTING)

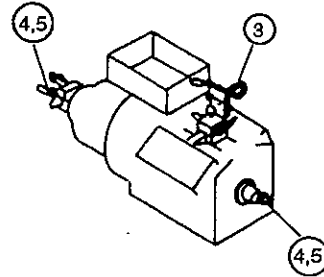
**POWER PANEL  
CONTROL COMPONENTS**

ITEM NO.	QTY PER UNIT	DESCRIPTION	VOLT. CODE	PART NO. ALL MODELS
<sup>s</sup> 1	See p. 5	Contractor (w/Suppressor), Compressor	ALL	SEE PAGE 5
<sup>s</sup> 2	1	FUSE Control (7 amp), 1FU	ALL	025-25515-000
3	1	Fuseholder (Use with Item 2)	ALL	025-17407-000
4	2	Transformer, Current	ALL	025-27408-000

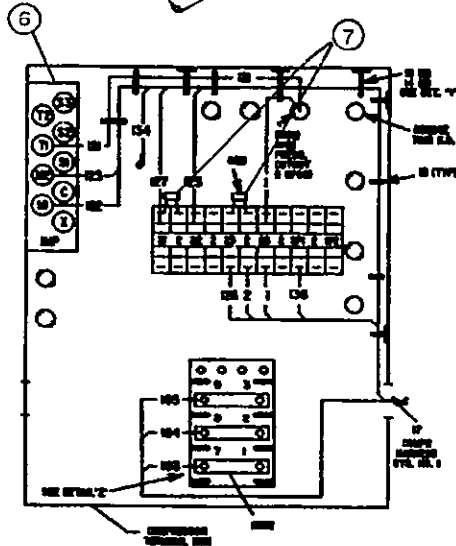
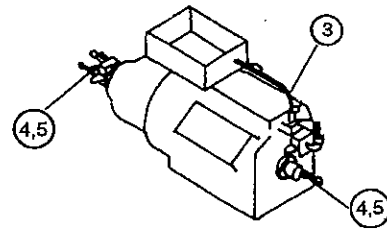
<sup>s</sup> Recommended Stock Spare Part



**4 CYLINDER  
COMPRESSOR**



**6 CYLINDER  
COMPRESSOR**



**"Z" COMPRESSOR SYSTEM  
TYPICAL COMPRESSOR MOTOR TERMINAL BOX**

**CONTROL COMPONENTS**

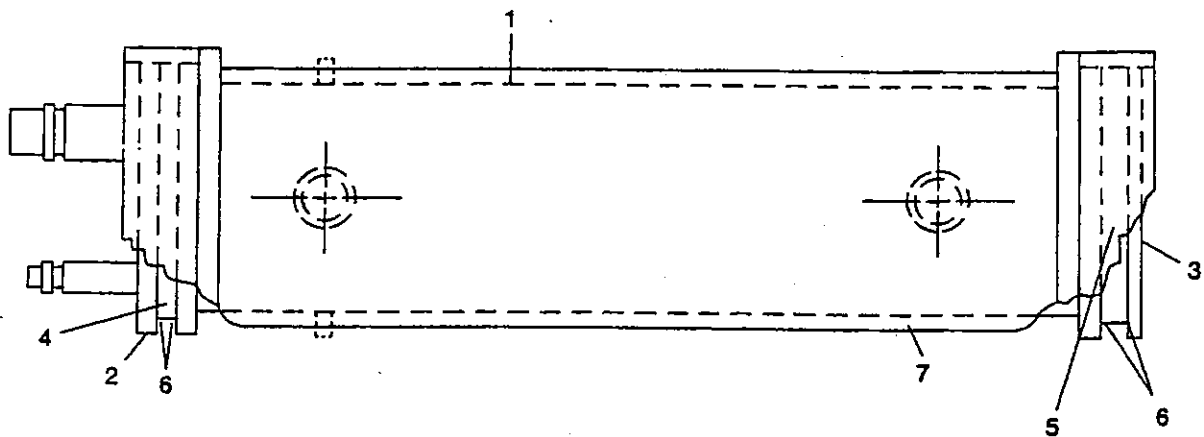
ITEM NO.	QTY PER UNIT	DESCRIPTION	VOLT. CODE	PART NO. ALL MODELS
<sup>s</sup> 1	2	SENSORS Water Temperature (LWT,RWT)	ALL	025-29964-000
2	1	Heat Conductive Compound (Use with Item 1)	ALL	013-00898-000
<sup>s</sup> 3	2	High Pressure Cutout	ALL	025-28399-000
<sup>s</sup> 4	4	Transducer (Oil & Suction Pressure)	ALL	025-29139-002
5	4	Brass Adaptor (Use with Item 4)	ALL	023-16272-000
6	2	Module, Motor Protector	ALL	025-07522-000
<sup>s</sup> 7	See Table Below	Suppressor, Compressor Unloading Solenoids and Liquid Line Solenoids	ALL	031-01117-000

UNIT MODEL	YCWZ33AB, YCRZ33AO	YCWZ44AB, YCRZ44AO	YCWZ47CC, YCRZ47CO	YCWZ77CC, YCRZ77CO
QUANTITY	4	4	5	6

UNIT MODEL	YCWZ88CC, YCRZ88CO	YCWZ88HD, YCRZ88HO	YCWZ89HD, YCRZ89HO	YCWZ99HD, YCRZ99HO
QUANTITY	6	6	4	4

<sup>s</sup> Recommended Stock Spare Part



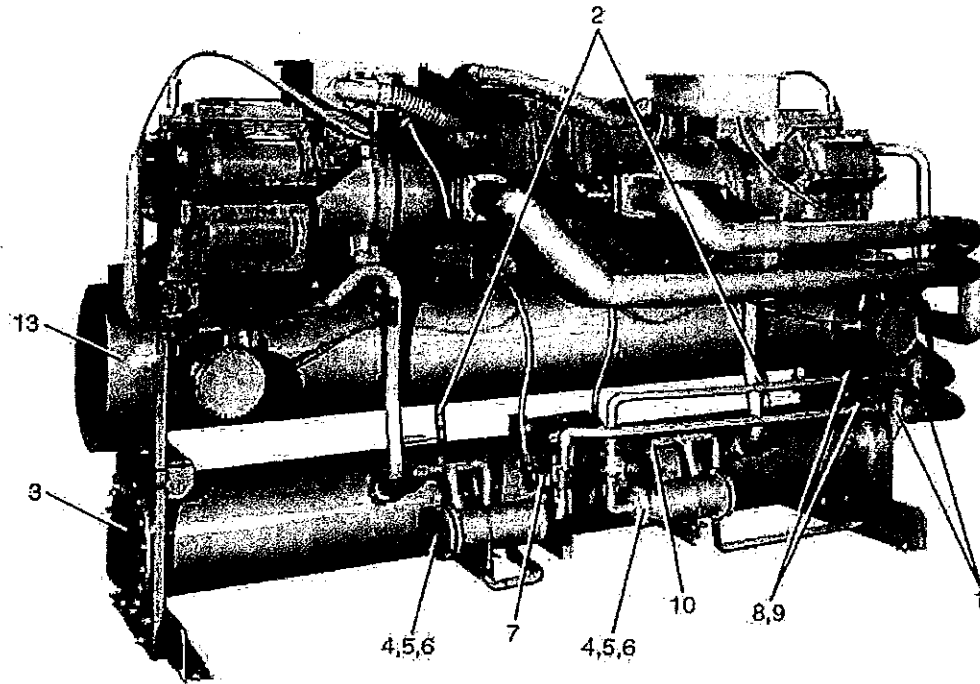
### COOLER COMPONENTS

ITEM NO.	QTY PER UNIT	DESCRIPTION	UNIT MODEL			
			YCWZ33AB YCRZ33AO	YCWZ44AB YCRZ44AO	YCWZ47CC YCRZ47CO	YCWZ77CC YCRZ77CO
1	1	Cooler, Less Insulation (Includes Items 2 thru 6)	375-17501	375-17501	375-17505	375-17505
2	1	Head, Connection End	375-17525	375-17525	375-17553	375-17553
3	1	Head, Back End	375-17523	375-17523	375-17554	375-17554
4	1	Pass Baffle, Connection End	075-17031	075-17031	075-17544	075-17544
5	1	Pass Baffle, Back End	375-18173	375-18173	375-18174	375-18174
<sup>s</sup> 6 <sup>1</sup>	4	Gasket, Pass Baffle & Head	075-17033	075-17033	075-17546	075-17546
7	3	Insulation, 3/4" x 49" x 65"	010-04198	010-04198	010-04198	010-04198

ITEM NO.	QTY PER UNIT	DESCRIPTION	UNIT MODEL			
			YCWZ88CC YCRZ88CO	YCWZ88HD YCRZ88HO	YCWZ89HD YCRZ89HO	YCWZ99HD YCRZ99HO
1	1	Cooler, Less Insulation (Includes Items 2 thru 6)	375-17505	375-17511	375-17511	375-17511
2	1	Head, Connection End	375-17553	375-18009	375-18009	375-18009
3	1	Head, Back End	375-17554	375-18008	375-18008	375-18008
4	1	Pass Baffle, Connection End	075-17544	375-17085	375-17085	375-17085
5	1	Pass Baffle, Back End	375-18174	075-17084	075-17084	075-17084
<sup>s</sup> 6 <sup>1</sup>	4	Gasket, Pass Baffle & Head	075-17546	075-17082	075-17082	075-17082
7	3	Insulation, 3/4" x 49" x 65"	010-04198	010-04198	010-04198	010-04198

#### NOTES:

- <sup>s</sup> Recommended Stock Spare Part  
 1. When replacing gasket, Item 6, use:  
<sup>s</sup> Sealer, Gasket, 013-02827  
<sup>s</sup> Primer, 013-01753



426088

FIG. 1 - UNIT REFRIGERANT COMPONENTS (WATER COOLED MODEL SHOWN)

### UNIT COMPONENTS

#### WATER COOLED MODELS

ITEM NO.	QTY PER UNIT	DESCRIPTION	UNIT MODEL			
			YCWZ33AB	YCWZ44AB	YCWZ47CC	YCWZ77CC
<sup>s</sup> 1	2	Valve, Thermal Expansion	025-23211	025-23211	025-21955	025-21955
<sup>s</sup> 2	2	Valve, Relief	022-08870	022-08870	022-08870	022-08870
3	1	Condenser	SEE PAGE 14			
			UNIT MODEL			
			YCWZ88CC	YCWZ88HD	YCWZ89HD	YCWZ99HD
<sup>s</sup> 1	2	Valve, Thermal Expansion	025-21955	025-21955	025-21955	025-21955
<sup>s</sup> 2	2	Valve, Relief	022-08870	022-08870	022-08870	022-08870
3	1	Condenser	SEE PAGE 14			

#### REMOTE CONDENSER MODELS

ITEM NO.	QTY PER UNIT	DESCRIPTION	UNIT MODEL			
			YCRZ33AO	YCRZ44AO	YCRZ47CO	YCRZ77CO
<sup>s</sup> 1	2	Valve, Thermal Expansion	025-21954	025-21954	025-23211	025-23211
			UNIT MODEL			
			YCRZ88CO	YCRZ88HO	YCRZ89HO	YCRZ99HO
<sup>s</sup> 1	2	Valve, Thermal Expansion	025-23211	025-23211	025-23211	025-23211

<sup>s</sup> Recommended Stock Spare Part

**UNIT COMPONENTS (Continued)**  
(See Fig. 1)

**WATER COOLED AND REMOTE CONDENSER MODELS**

ITEM NO.	QTY PER UNIT	DESCRIPTION	UNIT MODEL			
			YCWZ33AB YCRZ33AO	YCWZ44AB YCRZ44AO	YCWZ47CC YCRZ46CO	YCWZ77CC YCRZ77CO
<sup>s</sup> 4	2	Dehydrator, Body (Permanent Core)	026-20145	026-20145	-	-
5	2	Dehydrator, Body (Replaceable Core)	-	-	026-30598	026-30598
<sup>s</sup> 6	4	Dehydrator, Core (Use with Item 5)	-	-	026-18328	026-18328
7	2	Valve, Liquid Solenoid	025-17513	025-17513	025-17513	025-17513
8	2	Moisture Indicator, Body	026-32397	026-32397	026-32397	026-32397
9	2	Moisture Indicator, Cap Assembly	026-32800	026-32800	026-32800	026-32800
10	2	Valve, Liquid Stop	025-10510	025-10510	025-10510	025-10510
11	2	Compressor	SEE PAGE 4			
12	16	Pad Isolator	075-00820	075-00820	075-00820	075-00820
13	1	Cooler	SEE PAGE 9			

ITEM NO.	QTY PER UNIT	DESCRIPTION	UNIT MODEL			
			YCWZ88HD YCRZ88CO	YCWZ88HD YCRZ88HD	YCWZ89HD YCRZ88HO	YCWZ99HD YCRZ99HO
5	2	Dehydrator, Body (Replaceable Core)	026-30598	026-30598	026-30598	026-30598
<sup>s</sup> 6	4	Dehydrator, Core (Use with Item 5)	026-18328	026-18328	026-18328	026-18328
7	2	Valve, Liquid Solenoid	025-17513	025-17513	025-17513	025-17513
8	2	Moisture Indicator, Body	026-32397	026-32397	026-32397	026-32397
9	2	Moisture Indicator, Cap Assembly	026-32800	026-32800	026-32800	026-32800
10	2	Valve, Liquid Stop	025-10510	025-10510	025-10510	025-10510
11	2	Compressor	SEE PAGE 4			
12	16	Pad Isolator	075-00820	075-00820	075-00820	075-00820
13	1	Cooler	SEE PAGE 9			

<sup>s</sup> Recommended Stock Spare Part



## COMPONENTS FOR UNIT OPTIONS <sup>1</sup>

ITEM NO.	QTY PER UNIT	DESCRIPTION	VOLT. CODE	ALL MODELS
<b>POWER DISCONNECT SWITCH (PDS)</b>				
A	1	Switch, Disconnect (Across-the-Line Start)	-17 -28 -40 -46 -50 -58 -64	SEE PAGE 13 FOR MODELS
		Switch, Disconnect (Part-Winding Start)	-17 -28 -40 -46 -50 -58 -64	

ITEM NO.	QTY PER UNIT	DESCRIPTION	VOLT. CODE	ALL MODELS
<b>CHICAGO CODE</b>				
B	2	Valve Relief (YCW Units Only)	ALL	022-08894-000

<b>CONTROL TRANSFORMER (1T)</b>				
C	1	Transformer	-17	025-28664-001
			-28	025-28664-002
			-40	025-28664-003
			-46	025-28664-002
			-50	025-28664-003
			-58	025-28664-004
			-64	N.A.
D	2	Fuse, Transformer	-17	025-27972-000
			-28	025-27971-000
			-40	025-27970-000
			-46	025-27922-000
			-50	025-27970-000
			-58	025-17360-000
			-64	N.A.

<b>PUMP CONTROL KIT/RELAY BOARD KIT</b>				
E	1	Relay Control Board	ALL	031-01093-000

<b>DISCHARGE PRESSURE READOUT</b>				
F	2*	Transducer, Discharge Pressure	ALL	025-29139-001
G	2*	Adaptor, Transducer (Use with Item F)	ALL	023-16272-000

<b>LOADMINDER (HOT GAS BYPASS) <sup>4</sup></b>				
H	2	MODEL YCWZ Valve, Regulator, Hot Gas	ALL	025-27647-000
I	2	Suppressor	ALL	031-01117-000
J	2	MODEL YCRZ Valve, Regulator, Hot Gas	ALL	025-27647-000
K	2	Suppressor	ALL	031-01117-000

**NOTES (For Pages 12 - 13):**

- \* One required per compressor
- Not Applicable

N.A. Not Available

1. Parts listed on pages 12 and 13 are for single replacement parts contained in the Option Kits. Part Numbers provided **DO NOT** reflect part numbers for complete Option Kits. See the Installation Operation Manual, Form 150.55-NM3 for complete Option Kit Part Numbers.

2. All other parts for this option are the same as standard, including cooler, controls, and unit components.
3. This option also requires Relay Board Kit, Item I, and Discharge Pressure Readout Kit, Items J and K.
4. Loadminder Option also requires Relay Board Kit, Item E.
5. Used with Remote Control Center (If Specified).

## COMPONENTS FOR UNIT OPTIONS <sup>1</sup>

ITEM NO.	UNIT MODEL								
	YCWZ33AB	YCWZ44AB	YCWZ47CC	YCWZ77CC	YCWZ88CC	YCWZ88HD	YCWZ89HD	YCWZ99HD	
	YCRZ33AO	YCRZ44AO	YCRZ47CO	YCRZ77CO	YCRZ88CO	YCRZ88HO	YCRZ89HO		YCRZ99HO
<b>POWER DISCONNECT SWITCH (PDS)</b>									
A	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565
	024-25564	024-25564	024-25564	024-25564	024-25563	024-25563	024-25563	024-25563	024-25563
	024-25565	024-25565	024-25564	024-25564	024-25564	024-25564	024-25564	024-25564	024-25563
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25564
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565
	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565	024-25565

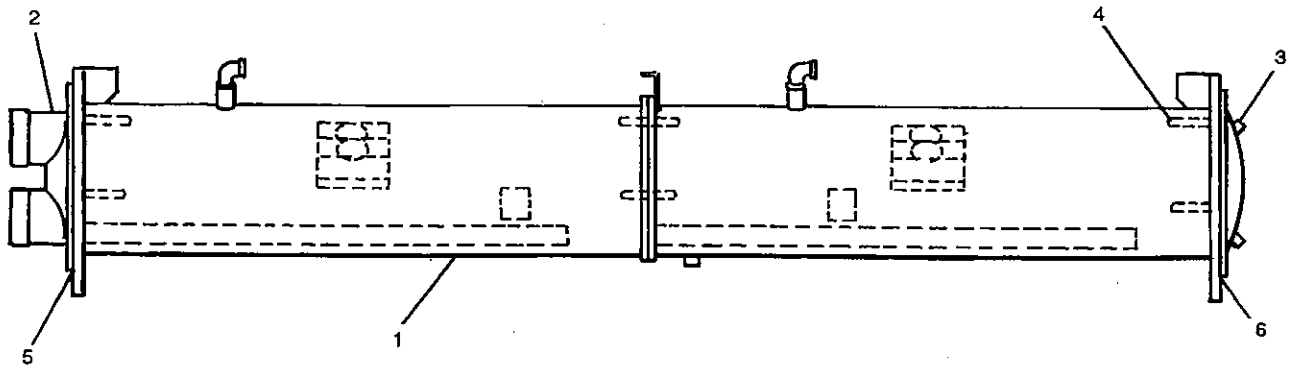
ITEM NO.	QTY PER UNIT	DESCRIPTION	VOLT. CODE	ALL MODELS
<b>FLOW CONTROL SWITCH</b>				
L	1	Switch, Flow	ALL	024-26116-000
<b>REMOTE CONTROL CENTER</b>				
M	1	Control, Micro Board	ALL	031-01196-000
<b>WALL-MOUNTED TRANSFORMER <sup>5</sup></b>				
N	1	Primary Voltage 115/1/60 Primary Voltage 230/1/50	- -	025-29917-001 025-29917-002
<b>MULTIPLE UNIT SEQUENCING KIT</b>				
O	1	Sensor, Temperature	ALL	025-28935-000
P	1	Resistor, 180 Ohm Fixed	ALL	025-29900-000
<b>BAS INTERFACE</b>				
Q	1	Control, Remote Reset	ALL	031-00814-000
<b>MUFFLER, DISCHARGE</b>				
R	2	Muffler, Discharge (YCR Units Only)	ALL	029-20225-000
<b>CONDENSER WATER TEMPERATURE READOUT</b>				
S	2	Sensor, Temperature (YCW Units Only)	ALL	025-29964-000

**NOTES (For Pages 12 - 13):**

- \* One required per compressor
- Not Applicable
- N.A. Not Available

1. Parts listed on pages 12 and 13 are for single replacement parts contained in the Option Kits. Part Numbers provided **DO NOT** reflect part numbers for complete Option Kits. See the Installation Operation Manual, Form 150.55-NM3 for complete Option Kit Part Numbers.

2. All other parts for this option are the same as standard, including cooler, controls, and unit components.
3. This option also requires Relay Board Kit, Item I, and Discharge Pressure Readout Kit, Items J and K.
4. Loadminder Option also requires Relay Board Kit, Item E.
5. Used with Remote Control Center (if Specified).



### CONDENSER COMPONENTS

ITEM NO.	QTY PER UNIT	DESCRIPTION	UNIT MODEL			
			YCWZ33AB	YCWZ44AB	YCWZ47CC	YCWZ77CC
1	1	Condenser (Includes Items 2 thru 7)	375-01016-000	375-01016-000	375-01017-000	375-01017-000
2	1	Head, Front End	375-00390-001	375-00390-001	375-00390-001	375-00390-001
3	1	Head, Back End	375-00391-001	375-00391-001	375-00391-001	375-00391-001
4	-	Tube Condenser No. Tubes per Condenser	007-07864-000 73	007-07864-000 73	007-07864-000 95	007-07864-000 95
<sup>s</sup> 5 <sup>1</sup>	1	Gasket, Head, Front	075-00394-001	075-00394-001	075-00394-001	075-00394-001
<sup>s</sup> 6 <sup>1</sup>	1	Gasket, Head, Back	075-00394-001	075-00394-001	075-00394-001	075-00394-001

ITEM NO.	QTY PER UNIT	DESCRIPTION	UNIT MODEL			
			YCWZ88CC	YCWZ88HD	YCWZ89HD	YCWZ99HD
1	1	Condenser (Includes Items 2 thru 7)	375-01017-000	375-01018-000	375-01018-000	375-01018-000
2	1	Head, Front End	375-00390-001	366-90688-000	366-90688-000	366-90688-000
3	1	Head, Back End	375-00391-001	366-92136-000	366-92136-000	366-92136-000
4	-	Tube Condenser End No. Tubes per Condenser	007-07864-000 95	007-07864-000 134	007-07864-000 134	007-07864-000 134
<sup>s</sup> 5 <sup>1</sup>	1	Gasket, Head, Front	075-00394-001	067-77469-000	067-77469-000	067-77469-000
<sup>s</sup> 6 <sup>1</sup>	1	Gasket, Head, Back	075-00394-001	067-77469-000	067-77469-000	067-77469-000

**NOTES:**

- <sup>s</sup> Recommended Stock Spare Part
1. When replacing gaskets, Items 5 & 6, use:
- <sup>s</sup> Sealer, Gasket, 013-02827
  - <sup>s</sup> Primer, 013-01753