



City of Sweet Home  
Police Department  
Jason Ogden, Chief of Police  
3225 Main Street, Sweet Home, OR 97386

---

## PROPOSAL DOCUMENT REPORT

Const No. 2023-Const-006

HVAC System for Police Department

RESPONSE DEADLINE: April 28, 2023 at 2:00 pm

Report Generated: Tuesday, May 2, 2023

## Walker Heating and AC, INC. Proposal

### CONTACT INFORMATION

**Company:**

Walker Heating and AC, INC.

**Email:**

walkerheatingandac@gmail.com

**Contact:**

Melissa Walker

**Address:**

2222 Main Street  
Sweet Home, OR 97386

**Phone:**

(541) 367-8706

**Website:**

N/A

**Submission Date:**

Apr 19, 2023 12:20 PM

## ADDENDA CONFIRMATION

### Addendum #1

*Confirmed Apr 26, 2023 6:56 AM by Melissa Walker*

### Addendum #2

*Confirmed Apr 26, 2023 3:26 PM by Melissa Walker*

## QUESTIONNAIRE

### 1. Subcontractor Disclosure Form

within two (2) hours of Bid Opening.

HPSCAN\_20230419182658993\_2023-04-19\_182747572.pdfHPSCAN\_20230419183217302\_2023-04-19\_183305803.pdfEstimate\_2767\_(1).pdfYSC036G3EMB0000\_Submittal.pdfYSC048G3EMB0000\_Submittal.pdfYSC060G3EMB0000\_Submittal.pdfYSC090H3EMA0001\_Submittal.pdfTC42ACTC80R1\_Submittal.pdfTC43ACTC90R3\_Submittal.pdfBAYBARM011A\_INSTALL.pdfBAYECON086B\_INSTALL.pdf

### 2. Bid Bond\*

A 10% bid bond, certified check, or cashier's check shall accompany each bid on all projects and shall be forfeited if the bidder fails to enter into a Contract with the City of Sweet Home within ten (10) days after the date of the Notice of Award.

COI-Sweet\_Home\_Police\_Department.PDF

### 3. Insurance and Bonding

If selected, bidder will furnish insurance certificates, Performance Bond, and Payment Bond following Notice of Award.

Confirmed

**4. OFFER\***

Bidder attests that they have carefully examined the Special Instructions, Project/Specifications, General Instructions and all other related material and information, and agrees to comply with the terms set forth in those documents and to furnish the services described at the rates or sum bid?

Bidder further agrees that this offer will remain in effect at the rates or sum bid for a period of not less than 180 calendar days from the date that bids are due and that this offer may not be withdrawn or modified during that time unless otherwise agreed upon by the City?

Yes

**5. Collusion and Discrimination\***

The Bidder hereby certifies that this bid is genuine and that it has not entered into collusion with any other vendor(s) or any other person(s).

The Bidder hereby certifies that it has not discriminated and will not discriminate against any minority, women or emerging small business enterprise or against a business enterprise that is owned or controlled by or that employs a disabled veteran as defined in ORS 408.225 in obtaining any required subcontract per ORS 279A.110.

Confirmed

**6. Tax\***

The Bidder hereby certifies that they have complied with the tax laws of Oregon and all political subdivision of the State of Oregon, including ORS 305.620 and ORS chapters 316, 317 and 318. The City may terminate the contract if contractor fails to comply with any tax laws during the term of the contract.

Confirmed

**7. Resident Bidder \***

Is the Bidder a resident as defined in ORS 279A.120\*?

\*ORS 279A.120(1)(b) – Resident bidder means a bidder that has paid unemployment taxes or income taxes in this state during the 12 calendar months immediately preceding submission of the bid, has a business address in this state and has stated in the bid whether the vendor is a resident vendor . Nonresident vendor shall comply with the provisions of ORS 279A.120(3).

Yes

8. I certify that I have read, understood and agree to the requirements in the solicitation, and that I am authorized to submit this Bid on behalf of my company.\*

Confirmed

**PRICE TABLES**

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
1	Include the grand total amount for the completion of the entire scope.	1	LS	\$131,844.00	\$131,844.00
<b>TOTAL</b>					<b>\$131,844.00</b>

**A. AGREEMENT  
CITY OF SWEET HOME, OREGON**

This agreement, made and entered into by and between Walker Heating and AC, INC. hereinafter called the "Contractor", and City of Sweet Home, Oregon, a political subdivision of the State of Oregon, hereinafter called the "Owner".

WITNESSETH:

WHEREAS, the Contractor has submitted the lowest acceptable bid to Owner and the contract has been awarded to the Contractor and parties hereto are desirous of entering into an agreement for the performance of the said work.

NOW, THEREFORE, Contractor and Owner, for the consideration herein stated agree as follows:

**ARTICLE 1:** The Contractor agrees to do all the work and furnish all the materials, labor, tools and equipment for the construction of the Sweet Home Police Dept. Project in accordance with the Bid and this Agreement made by the Contractor.

**ARTICLE 2:** The following documents together comprise the Contract Documents and are hereby made a part of this Contract Agreement:

- Addenda, if any – modifications incorporated into the documents before their execution.
- Plans and Drawings
- Bidding Requirements, including:
  - Invitation to Bid
  - Project Information
  - General Conditions
  - General Instructions
- Bid forms, including:
  - Offer
  - Bid Schedule
  - Certification and Contract Offer
  - Bid Guaranty
  - First-Tier Subcontractors Disclosure Form
  - Bidder Responsibility Form
- Contract Forms including:
  - Contract Agreement
  - Performance Bond
  - Payment Bond
  - Selection of Retainage Option
- Other documents referred to in the contract documents are part of the contract by reference.
- Change Orders and Price Agreements – duly issued contract modifications after the contract documents are executed.

**ARTICLE 3:** In consideration of the faithful performance of the work herein embraced, the Owner agrees to pay Contractor such sum as shall be determined by the Department of Support Services/Facilities Management Division, City of Sweet Home, Oregon based upon work

and assigns of each of the parties hereto.

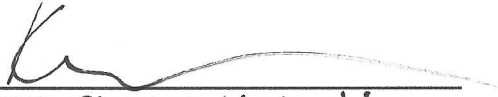
IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed on the dates set forth below.

CONTRACTOR:

CITY OF SWEET HOME:

Waiker Heating and AC, INC.  
Contractor Legal Business Name

\_\_\_\_\_  
City Manager

  
Contractor Signature Kylan Waiker

\_\_\_\_\_  
Date

Owner  
Title

4-19-23  
Date

performed and in the manner set forth in the Contract Documents.

**ARTICLE 4:** The Contractor agrees that work under this contract shall be completed in accordance with the specified contract time. In the event Contractor fails to complete work within the time as herein mentioned, or in the extended time agreed upon, liquidated damage shall be computed and paid as specified in the General Instructions to Bidders.

**ARTICLE 5:** The Contractor agrees to faithfully complete and perform all of the obligations of this Contract, shall make payment promptly as due, to all subcontractors and to all persons supplying to the Contractor or their subcontractors, equipment, supplies, labor or materials for the prosecution of the work provided for in this Contract or any part thereof; shall pay all contributions or amounts due the State Industrial Accident fund and the State Unemployment Compensation Trust Fund from the Contractor or subcontractors incurred in the performance of this Contract and pay all sums of money withheld from the employees of said Contractor and payable to the Department of Revenue pursuant to ORS 316.167; shall not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished; shall promptly, as due, make payment to any person, co-partnership, association, or corporation furnishing medical, surgical, and hospital care or other needed care and attention incident to sickness or injury to the employees of such Contractor of all sums which the contractor has agreed to pay for such services and all monies and sums which the Contractor collected or deducted from the wages of their employees pursuant to any law, Contractor or agreement for the purposes of providing or paying for such service; shall pay all other just debts, dues, and demands incurred in the performance of the contract; and shall in all respects perform said Contract according to law.

**ARTICLE 6:** The Contractor agrees to remedy all defects appearing in the work or developing in the materials furnished and the workmanship performed under this Contract for a period of one year after the date of formal notice of substantial completion by the Owner and further agrees to indemnify and save the Owner harmless from any costs encountered in remedying such defects.

**ARTICLE 7:** It is expressly understood that this Contract in all respects shall be governed by the laws of the State of Oregon, and the ordinances and regulations of City of Sweet Home.

**ARTICLE 8:** In the event of any action for any purpose to enforce the terms of this Contract, the losing party will pay the prevailing party, in addition to the costs and disbursements allowed by law, such sum as the court may adjudge reasonable as attorney fees for the prosecution of said suit or action, including appeal. Any action arising out of this contract shall be brought in the District or Circuit Court for City of Sweet Home, Oregon or the Federal District Court for the State of Oregon, which courts shall have exclusive venue.

**ARTICLE 9:** In compliance with ORS 279.350 and as part of this bid, the Bidder herein agrees and it shall be a condition of their bond that in performing this contract they shall pay and cause to be paid not less than the state prevailing rate of wages as of the date of their bid for and to each and every worker who may be employed in and about the performance of their contract. If the public officers who make the contract determine at any time that the prevailing rate of wages has not been or is not being paid as required by the contract, they may retain from the monies due to the contractor an amount sufficient to make up the difference between the wages actually paid and prevailing rate of wages and they may also cancel the contract.

**ARTICLE 10:** This agreement is binding upon the heirs, executors, administrators, successors

WALKER HEATING & AC, INC.  
 PO Box 318  
 Sweet Home, OR 97386 US  
 (541) 367-8706  
 walkerheatingandac@gmail.com  
 CCB# 208491



Estimate

ADDRESS
Jason Ogden Sweet Home Police Station 1950 Main St Sweet Home, OR 97386

ESTIMATE #	DATE	EXPIRATION DATE
2767	04/17/2023	05/08/2023

ACTIVITY	QTY	RATE	AMOUNT
<b>Installation- Trane</b> Install 1- Trane-YSC036G3EMB0000 3 ton 14 SEER 100,000 BTU rooftop package HVAC unit supplying West perimeter offices. Installation includes labor, sheet metal transitions, filter housing, filter, thermostat and all install materials. Our installations will include the removal of old equipment and remove from premises.	1	17,044.00	17,044.00
<b>Services</b> Boom Truck for removal and replacement of HVAC unit.	1	800.00	800.00
<b>Installation- Trane</b> Install 1- Trane-YSC048G3EMB0000 4 ton 14 SEER 100,000 BTU rooftop package HVAC unit supplying West interior zone. Installation includes labor, sheet metal transitions, filter housing, filter, thermostat and all install materials. Our installations will include the removal of old equipment and remove from premises.	1	12,300.00	12,300.00
<b>Services</b> Boom Truck for removal and replacement of HVAC unit.	1	800.00	800.00
<b>Installation- Trane</b> Install 1- Trane-YSC048G3EMB0000 4 ton 14 SEER 100,000 BTU rooftop package HVAC unit supplying East interior zone. Installation includes labor, sheet metal transitions, filter housing, filter, thermostat and all install materials. Our installations will include the removal of old equipment and remove from	1	12,300.00	12,300.00



ACTIVITY	QTY	RATE	AMOUNT
premises.			
<b>Services</b> Boom Truck for removal and replacement of HVAC unit.	1	800.00	800.00
<b>Installation- Trane</b> Install 1- Trane-YSC060G3EMB0000 5 ton 14 SEER 100,000 BTU rooftop package HVAC unit supplying locker room zone. Installation includes labor, sheet metal transitions, filter housing, filter, thermostat and all install materials. Our installations will include the removal of old equipment and remove from premises.	1	13,500.00	13,500.00
<b>Services</b> Boom Truck for removal and replacement of HVAC unit.	1	800.00	800.00
<b>Installation- Trane</b> Install 1- Trane-YSC060G3EMB0000 5 ton 14 SEER 100,000 BTU rooftop package HVAC unit supplying North perimeter and vestibule zone. Installation includes labor, sheet metal transitions, filter housing, filter, thermostat and all install materials. Our installations will include the removal of old equipment and remove from premises.	1	13,500.00	13,500.00
<b>Services</b> Boom Truck for removal and replacement of HVAC unit.	1	800.00	800.00
<b>Installation- Trane</b> Install 1- Trane-YSC090H3EMA0001 7.5 ton 14 SEER 150,000 BTU rooftop package HVAC unit supplying locker room zone. Installation includes labor, sheet metal transitions, filter housing, filter, thermostat and all install materials. Our installations will include the removal of old equipment and remove from premises.	1	14,900.00	14,900.00
<b>Services</b> Boom Truck for removal and replacement of HVAC unit.	1	800.00	800.00
<b>Installation- General</b> Install 1- GREENHECK-IGX-109-H12-5-E 5 ton 150,000 BTU 100% outside air heating and cooling unit supplying holding area.	1	39,700.00	39,700.00
<b>Services</b> Boom Truck for removal and replacement of HVAC unit.	1	800.00	800.00
<b>Permit Fee</b> Permit Fee	1	3,000.00	3,000.00

ACTIVITY	QTY	RATE	AMOUNT
<b>Terms</b> *1/2 Down and Balance On Completion You will be notified if price increases from our vendor before materials are received. * Boom truck and permit fees are calculated replacing all 6 units at 1 time. * If units are replaced at different times. Boom truck and permits will need to be reevaluated.	1	0.00	0.00

\* All work to be completed at Sweet Home Police Station. 1950 Main St. Sweet Home, Oregon, 97386.

**TOTAL**

**\$131,844.00**

\* Equipment is on back order 12+ weeks once ordered.

Accepted By

Accepted Date



# Trane Precedent Gas/Electric Packaged Rooftop

## Unit Overview - YSC036G3EMB\*\*000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Weight		EER	IEER/SEER
DX cooling, gas heat	3 Ton (036)	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	12.0 EER	
		1200 cfm	0.500 in H2O	3.41 ft	3.69 ft	5.82 ft	472.0 lb	747.0 lb		

### Unit Features

### Unit Electrical

Voltage/phase/hertz	208-230/60/3
MCA	19.90 A
MOP	30.00 A



### Controls

**Unit Controls** Electro mechanical controls 3ph

### Cooling Section

		Capacity
Entering Dry Bulb	80.00 F	<b>Gross Total</b> 36.97 MBh
Entering Wet Bulb	67.00 F	<b>Gross Sensible</b> 29.79 MBh
Ambient Temp	95.00 F	<b>Net Total</b> 35.94 MBh
Leaving Coil Dry Bulb	57.21 F	<b>Net Sensible</b> 28.76 MBh
Leaving Coil Wet Bulb	57.21 F	<b>Fan Motor Heat</b> 1.03 MBh
Leaving Unit Dry Bulb	58.99 F	<b>Refrig Charge-circuit 1</b> 3.2 lb
Leaving Unit Wet Bulb	57.90 F	
Refrigeration System Options		
Leaving Dew Point	57.21 F	

### Heating Section

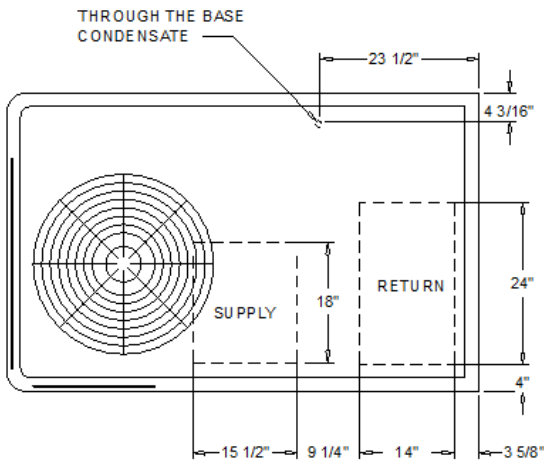
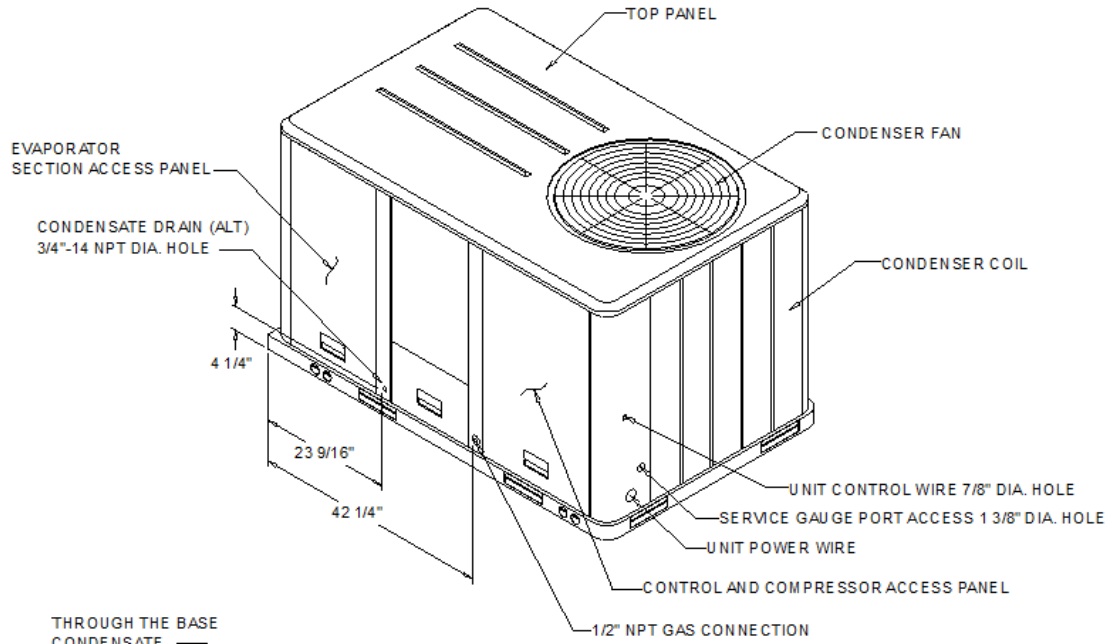
Heating Stages	2
Output Heating Capacity	81.00 MBh
Output Heating Capacity with Fan	82.25 MBh
Heating EAT	70.00 F
Heating LAT	132.70 F
Heating Temp Rise	62.70 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
Type	FC Centrifugal	Type	Propeller
Drive Type	Direct	Fan Quantity	1
Indoor Fan Performance		Drive Type	Direct
Airflow	1200 cfm	Outdoor Fan Performance	
Design ESP	0.500 in H2O	Condenser Fan FLA	0.00 A
Indoor Motor Operating Power	0.40 bhp	Exhaust Fan Data	
Indoor Motor Power	0.30 kW	Type	FC Centrifugal
Indoor RPM	918 rpm	Drive Type	Direct
Indoor Fan FLA	0.00 A	Exhaust Fan Performance	
		Exhaust Fan FLA	0.00 A

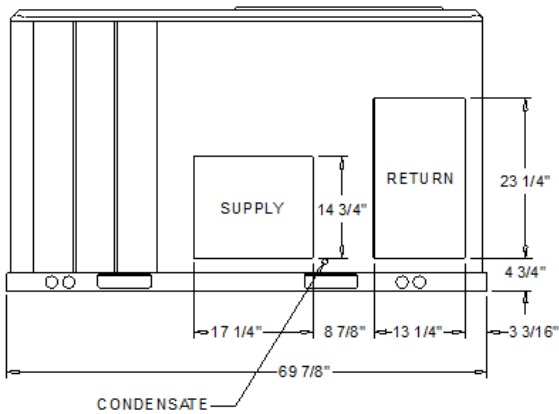
### Compressor Section

Power	0.00 kW
Circuit 1 RLA	0.00 A
Circuit 2 RLA	1.10 A

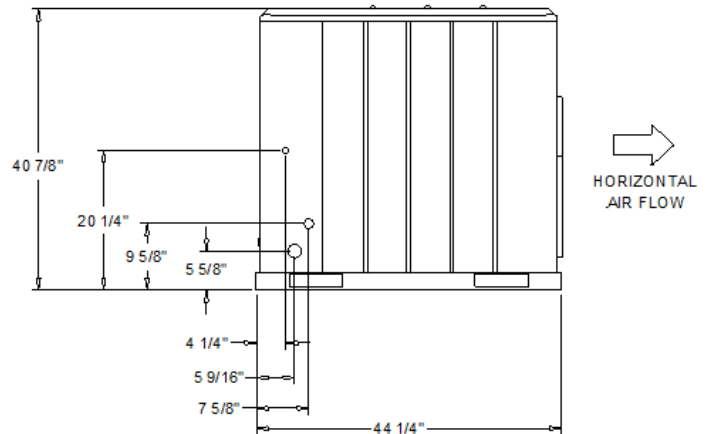


NOTES:  
 1. THRU -THE -BASE GAS AND ELECTRICAL IS NOT STANDARD ON ALL UNITS.  
 2. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION

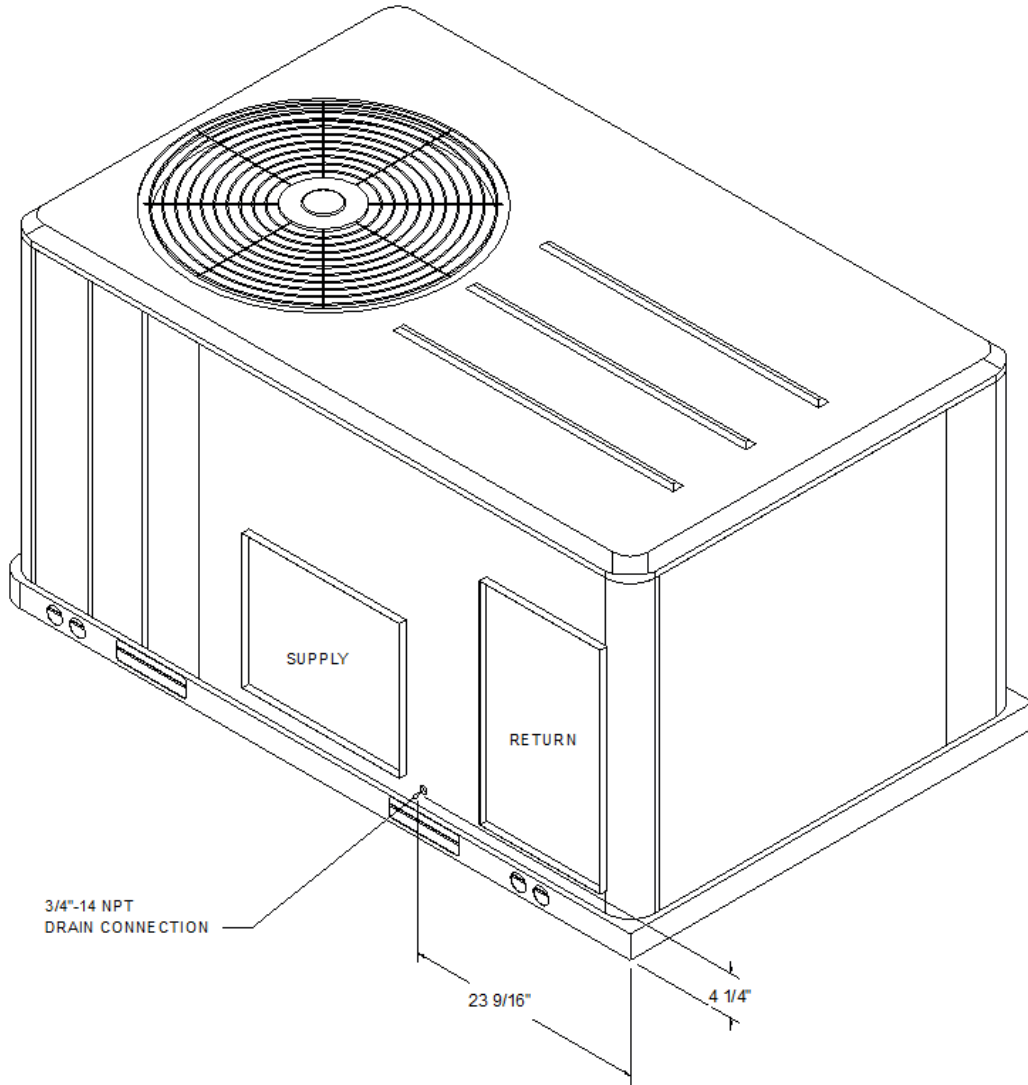
PLAN VIEW UNIT  
 DIMENSION DRAWING



PACKAGED GAS / ELECTRICAL  
 DIMENSION DRAWING



HORIZONTAL  
 AIR FLOW



ISOMETRIC-PACKAGED COOLING



### ELECTRICAL / GENERAL DATA

<b>GENERAL</b> <sup>(2)(4)(6)</sup> Model: YSC036G Oversized Motor Unit Operating Voltage: 187-253 MCA: N/A Unit Primary Voltage: 208 MFS: N/A Unit Secondary Voltage: 230 MCB: N/A Unit Hertz: 60 Unit Phase: 3 EER/SEER 12.0/14.0 Standard Motor MCA: 19.9 MCA: N/A MFS: 30.0 MFS: N/A MCB: 30.0 MCB: N/A		<b>HEATING PERFORMANCE</b> <b>HEATING - GENERAL DATA</b> Heating Model: Medium Heating Input (BTU): 100,000/70,000 Heating Output (BTU): 81,000/56,700 No. Burners: 3 No. Stages: 2 Gas Inlet Pressure Natural Gas (Min/Mix): 4.5/14.0 LP (Min/Max): 11.0/14.0 Gas Pipe Connection Size: 1/2"																						
<b>INDOOR MOTOR</b> <table border="0"> <tr> <td>Standard Motor</td> <td>Oversized Motor</td> <td>Field Installed Oversized Motor</td> </tr> <tr> <td>Number: 1</td> <td>Number: N/A</td> <td>Number: N/A</td> </tr> <tr> <td>Horsepower: 0.75</td> <td>Horsepower: N/A</td> <td>Horsepower: N/A</td> </tr> <tr> <td>Motor Speed (RPM): --</td> <td>Motor Speed (RPM): N/A</td> <td>Motor Speed (RPM): N/A</td> </tr> <tr> <td>Phase: 1</td> <td>Phase: N/A</td> <td>Phase: N/A</td> </tr> <tr> <td>Full Load Amps: 5.7</td> <td>Full Load Amps: N/A</td> <td>Full Load Amps: N/A</td> </tr> <tr> <td>Locked Rotor Amps: --</td> <td>Locked Rotor Amps: N/A</td> <td>Locked Rotor Amps: N/A</td> </tr> </table>				Standard Motor	Oversized Motor	Field Installed Oversized Motor	Number: 1	Number: N/A	Number: N/A	Horsepower: 0.75	Horsepower: N/A	Horsepower: N/A	Motor Speed (RPM): --	Motor Speed (RPM): N/A	Motor Speed (RPM): N/A	Phase: 1	Phase: N/A	Phase: N/A	Full Load Amps: 5.7	Full Load Amps: N/A	Full Load Amps: N/A	Locked Rotor Amps: --	Locked Rotor Amps: N/A	Locked Rotor Amps: N/A
Standard Motor	Oversized Motor	Field Installed Oversized Motor																						
Number: 1	Number: N/A	Number: N/A																						
Horsepower: 0.75	Horsepower: N/A	Horsepower: N/A																						
Motor Speed (RPM): --	Motor Speed (RPM): N/A	Motor Speed (RPM): N/A																						
Phase: 1	Phase: N/A	Phase: N/A																						
Full Load Amps: 5.7	Full Load Amps: N/A	Full Load Amps: N/A																						
Locked Rotor Amps: --	Locked Rotor Amps: N/A	Locked Rotor Amps: N/A																						
<b>COMPRESSOR</b> Circuit 1/2 Number: 1 Horsepower: 2.8 Phase: 3 Rated Load Amps: 12.8 Locked Rotor Amps: 95.0		<b>OUTDOOR MOTOR</b> Number: 1 Horsepower: 0.25 Motor Speed (RPM): 1100 Phase: 3 Full Load Amps: 1.1 Locked Rotor Amps: 3.6																						
<b>POWER EXHAUST ACCESSORY</b> <sup>(3)</sup> (Field Installed Power Exhaust) Phase: N/A Horsepower: N/A Motor Speed (RPM): N/A Full Load Amps: N/A Locked Rotor Amps: N/A		<b>FILTERS</b> Type: Throwaway Furnished: Yes Number: 2 Recommended: 20"x35"x2"																						
<b>REFRIGERANT</b> <sup>(2)</sup> Type Factory Charge Circuit #1: 3.2 lb Circuit #2: N/A																								

**NOTES:**

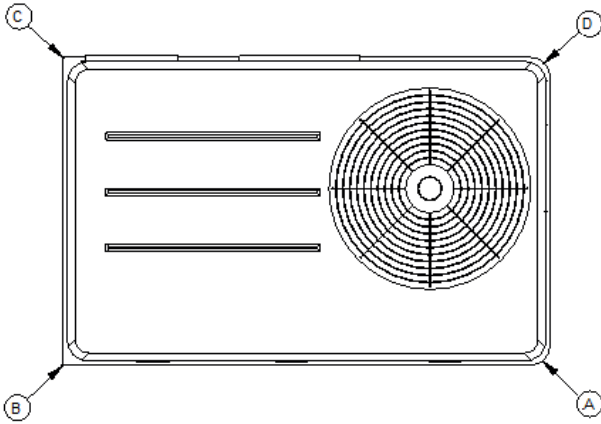
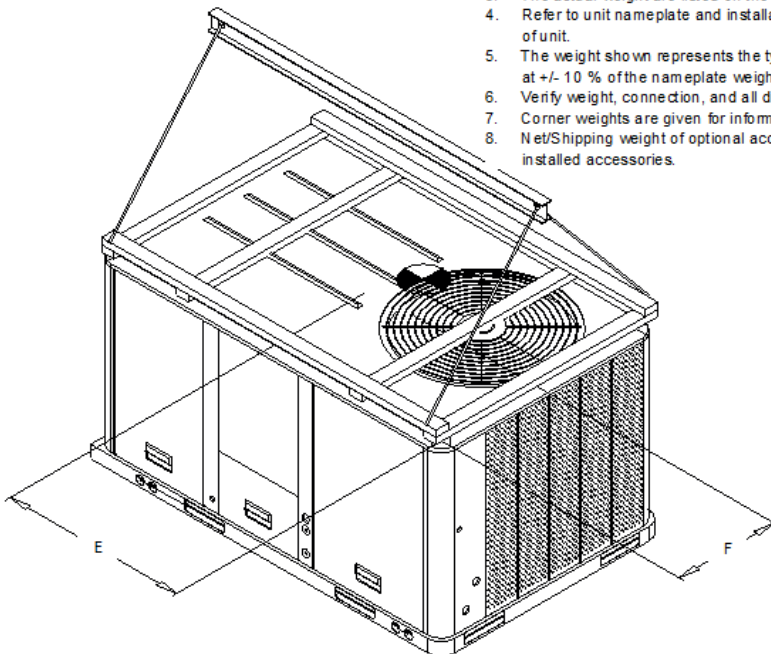
1. Maximum (HACR) Circuit Breaker sizing is for installations in the United States only.
2. Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
3. Value does not include Power Exhaust Accessory.
4. Value includes oversized motor.
5. Value does not include Power Exhaust Accessory.
6. EER is rated at AHRI conditions and in accordance with DOE test procedures.

**INSTALLED ACCESSORIES NET WEIGHT DATA**

ACCESSORY		WEIGHTS			
ECONOMIZER					
MOTORIZED OUTSIDE AIR DAMPER					
MANUAL OUTSIDE AIR DAMPER					
BAROMETRIC RELIEF					
OVERSIZED MOTOR					
BELT DRIVE MOTOR					
POWER EXHAUST					
THROUGH THE BASE ELECTRICAL/GAS (FIOPS)					
UNIT MOUNTED CIRCUIT BREAKER (FIOPS)					
UNIT MOUNTED DISCONNECT (FIOPS)					
POWERED CONVENIENCE OUTLET (FIOPS)					
HINGED DOORS (FIOPS)					
HAIL GUARD					
SMOKE DETECTOR, SUPPLY / RETURN					
NOVAR CONTROL					
STAINLESS STEEL HEAT EXCHANGER					
RE HEAT					
ROOF CURB					
BASIC UNIT WEIGHTS		CORNER WEIGHTS		CENTER OF GRAVITY	
SHIPPING	NET	(A)	(C)	(E) LENGHT	(F) WIDTH
577.0 lb	472.0 lb	(B)	178.0 lb	(D)	55.0 lb
				33"	9"

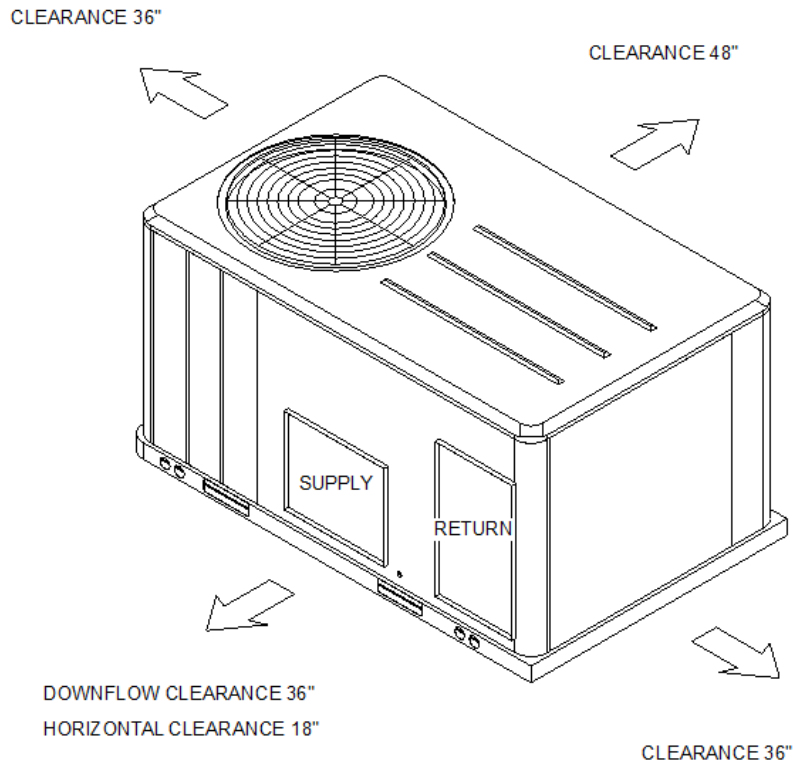
**NOTE:**

- All weights are approximate.
- Weights for options that are not list refer to Installation guide.
- The actual weight are listed on the unit nameplate.
- Refer to unit nameplate and installation guide for weights before scheduling transportation and installation of unit.
- The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10 % of the nameplate weight.
- Verify weight, connection, and all dimension with installer documents before installation.
- Corner weights are given for information only.
- Net/Shipping weight of optional accessories should be added to unit weight when ordering factory or field installed accessories.

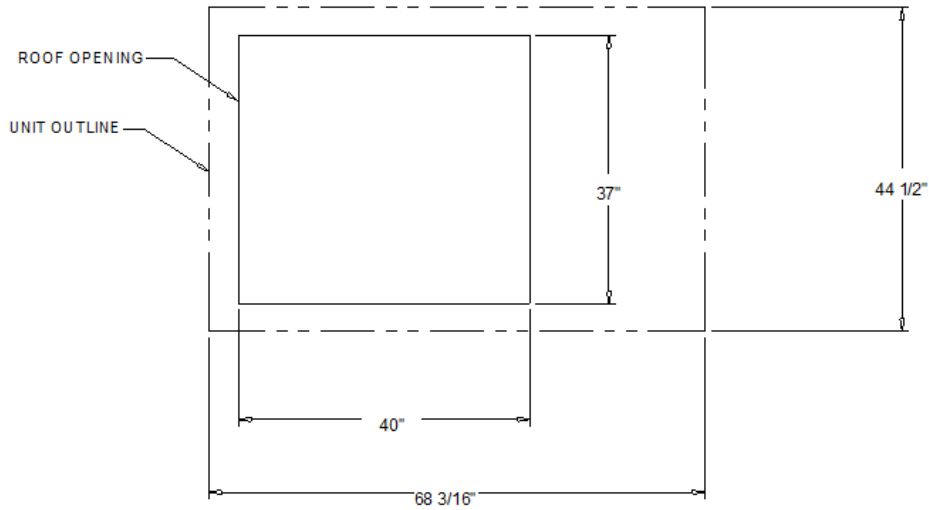

**PACKAGED GAS / ELECTRICAL**  
**CORNER WEIGHT**

**PACKAGED GAS / ELECTRICAL**  
**RIGGING AND CENTER OF GRAVITY**



CLEARANCE FROM TOP OF UNIT 72"



PACKAGED GAS / ELECTRIC  
CLEARANCE



PACKAGED GAS / ELECTRIC  
DOWNFLOW TYPICAL ROOF OPENING





## General

The units shall be convertible airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for units with microprocessor controls. Operating range for units with electromechanical controls shall be between 115°F and 40°F. Cooling performance shall be rated in accordance with ARI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.

## Casing

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. Service panels shall have lifting handles and be removed and reinstalled by removing two fasteners while providing a water and air tight seal. All exposed vertical panels and top covers in the indoor air section shall be insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material. The base of the unit shall be insulated with 1/8 inch, foil-faced, closed-cell insulation. All insulation edges shall be either captured or sealed. The unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8 inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting, with forklift capabilities on three sides of the unit.

## Unit Top

The top cover shall be one piece construction or, where seams exist, it shall be double-hemmed and gasket-sealed. The ribbed top adds extra strength and enhances water removal from unit top.

## Filters

Throwaway filters shall be standard on all units. Optional 2-inch MERV 8 and MERV 13 filters shall also be available.

## Compressors

All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.

Dual compressors are outstanding for humidity control, light load cooling conditions and system back-up applications. Dual compressors are available on 7½-10 ton models and allow for efficient cooling utilizing 3-stages of compressor operation for all high efficiency models.

## Indoor Fan

The following units shall be equipped with a direct drive plenum fan design (T/YSC120F, T/YHC074F, T/YHC092F, T/YHC102F, 120F). Plenum fan design shall include a backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor. All plenum fan designs will have a variable speed adjustment potentiometer located in the control box.

3 to 5 ton units (high efficiency 3-phase with optional motor) are belt driven, FC centrifugal fans with adjustable motor sheaves. 3 to 5 ton units (standard and high efficiency 3-phase) have multispeed, direct drive motors. All 6 to 8½ ton units (standard efficiency) shall have belt drive motors with an adjustable idler-arm assembly for quick-adjustment to fan belts and motor sheaves. All motors shall be thermally protected. All 10 tons, 6 ton (074), 7½ to 8½ (high efficiency) units have variable speed direct drive motors. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).



## **Outdoor Fans**

The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor shall be permanently lubricated and shall have built-in thermal overload protection.

## **Evaporator and Condenser Coils**

Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Evaporator coils are standard for all 3 to 10 ton standard efficiency models. Microchannel condenser coils are standard for all 3 to 10 ton standard efficiency models and 4, 5, 6, 7.5, 8.5 ton high efficiency models. The microchannel type condenser coil is not offered on the 4 and 5 ton dehumidification model. Due to flat streamlined tubes with small ports, and metallurgical tube-to-fin bond, microchannel coil has better heat transfer performance. Microchannel condenser coil can reduce system refrigerant charge by up to 50% because of smaller internal volume, which leads to better compressor reliability. Compact all-aluminum microchannel coils also help to reduce the unit weight. These all aluminum coils are recyclable. Galvanic corrosion is also minimized due to all aluminum construction. Strong aluminum brazed structure provides better fin protection. In addition, flat streamlined tubes also make microchannel coils more dust resistant and easier to clean. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 600 psig. The assembled unit shall be leak tested to 465 psig. The condenser coil shall have a patent pending 1+1+1 hybrid coil designed with slight gaps for ease of cleaning. A plastic, dual-sloped, removable and reversible condensate drain pan with through-the-base condensate drain is standard.

## **Controls**

Unit shall be completely factory-wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device. A choice of microprocessor or electromechanical controls shall be available. Microprocessor controls provide for all 24V control functions. The resident control algorithms shall make all heating, cooling, and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection. 24-volt electromechanical control circuit shall include control transformer and contactor

## **High Pressure Control**

All units include High Pressure Cutout as standard.

## **Phase monitor**

Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitor is equipped with an LED that provides an ON or FAULT indicator. There are no field adjustments. The module will automatically reset from a fault condition.

## **Refrigerant Circuits**

Each refrigerant circuit offer thermal expansion valve as standard. Service pressure ports, and refrigerant line filter driers are factory-installed as standard. An area shall be provided for replacement suction line driers.



## **Gas Heating Section**

The heating section shall have a progressive tubular heat exchanger design using stainless steel burners

and corrosion resistant steel throughout. An induced draft combustion blower shall be used to pull the combustion products through the firing tubes. The heater shall use a direct spark ignition (DSI) system. On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat/zone sensor. Units shall be suitable for use with natural gas or propane (field-installed kit) and also comply with the California requirement for low NOx emissions (Gas/Electric Only).



# Trane Precedent Gas/Electric Packaged Rooftop

## Unit Overview - YSC048G3EMB\*\*000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Weight		EER	IEER/SEER
		Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum		
DX cooling, gas heat	4 Ton (048)	1600 cfm	0.500 in H2O	3.41 ft	3.69 ft	5.82 ft	492.0 lb	767.0 lb	12.0 EER	14.00

### Unit Features

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	25.40 A
<b>MOP</b>	35.00 A



### Controls

**Unit Controls** Electro mechanical controls 3ph

### Cooling Section

		Capacity	
<b>Entering Dry Bulb</b>	80.00 F	<b>Gross Total</b>	48.90 MBh
<b>Entering Wet Bulb</b>	67.00 F	<b>Gross Sensible</b>	38.79 MBh
<b>Ambient Temp</b>	95.00 F	<b>Net Total</b>	47.58 MBh
<b>Leaving Coil Dry Bulb</b>	56.90 F	<b>Net Sensible</b>	37.47 MBh
<b>Leaving Coil Wet Bulb</b>	56.90 F	<b>Fan Motor Heat</b>	1.32 MBh
<b>Leaving Unit Dry Bulb</b>	58.68 F	<b>Refrig Charge-circuit 1</b>	3.5 lb
<b>Leaving Unit Wet Bulb</b>	57.60 F		
<b>Refrigeration System Options</b>			
<b>Leaving Dew Point</b>	56.91 F		

### Heating Section

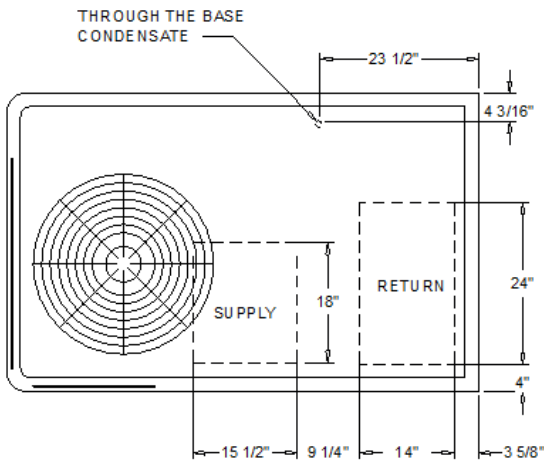
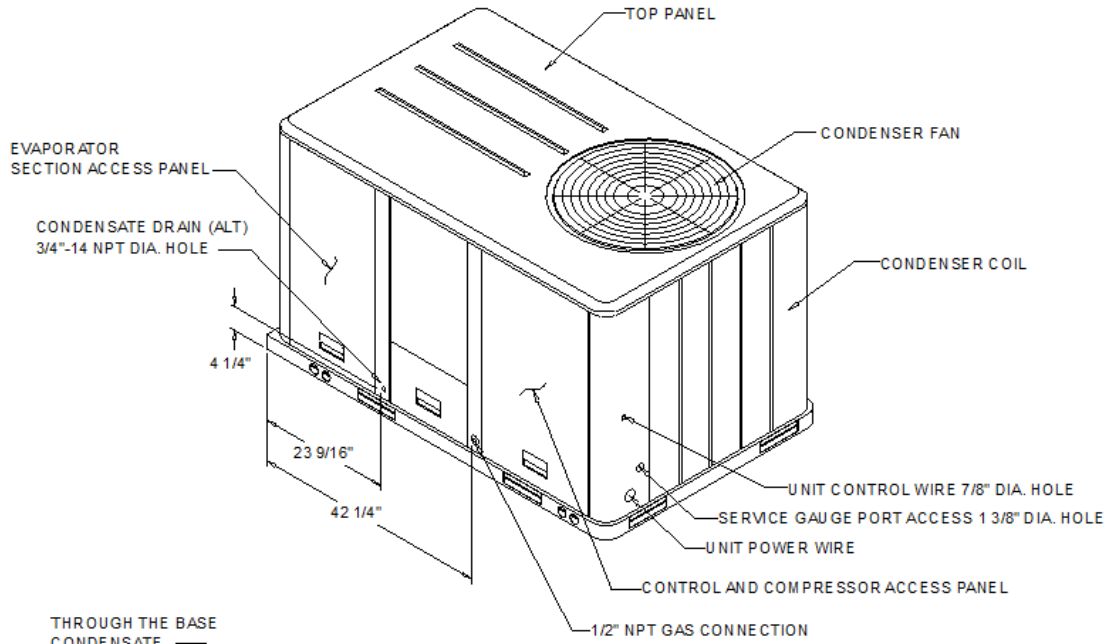
<b>Heating Stages</b>	2
<b>Output Heating Capacity</b>	81.00 MBh
<b>Output Heating Capacity with Fan</b>	82.58 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	117.10 F
<b>Heating Temp Rise</b>	47.10 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
<b>Type</b>	FC Centrifugal	<b>Type</b>	Propeller
<b>Drive Type</b>	Direct	<b>Fan Quantity</b>	1
<b>Indoor Fan Performance</b>		<b>Drive Type</b>	Direct
<b>Airflow</b>	1600 cfm	<b>Outdoor Fan Performance</b>	
<b>Design ESP</b>	0.500 in H2O	<b>Condenser Fan FLA</b>	0.00 A
<b>Indoor Motor Operating Power</b>	0.50 bhp	<b>Exhaust Fan Data</b>	
<b>Indoor Motor Power</b>	0.37 kW	<b>Type</b>	FC Centrifugal
<b>Indoor RPM</b>	945 rpm	<b>Drive Type</b>	Direct
<b>Indoor Fan FLA</b>	0.00 A	<b>Exhaust Fan Performance</b>	
		<b>Exhaust Fan FLA</b>	0.00 A

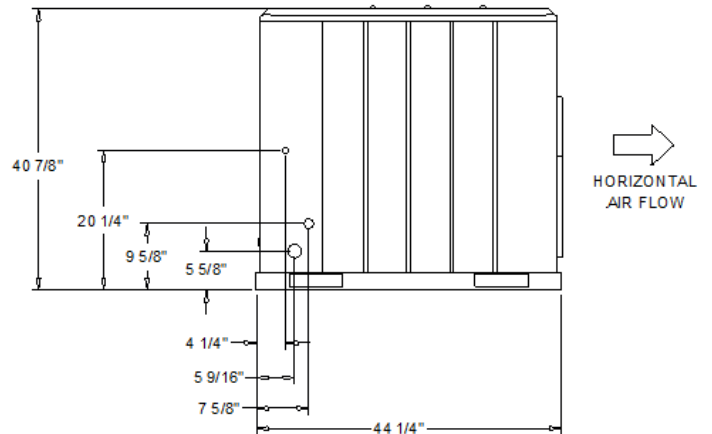
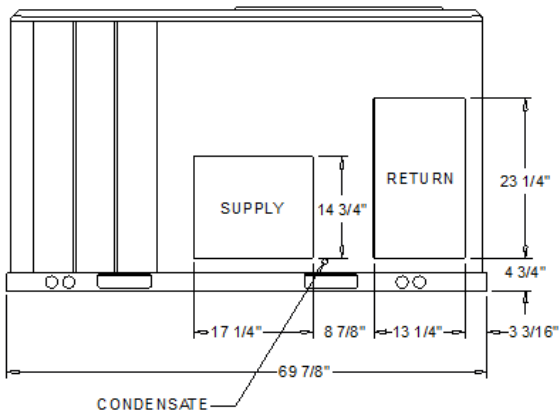
### Compressor Section

<b>Power</b>	0.00 kW
<b>Circuit 1 RLA</b>	0.00 A
<b>Circuit 2 RLA</b>	1.40 A

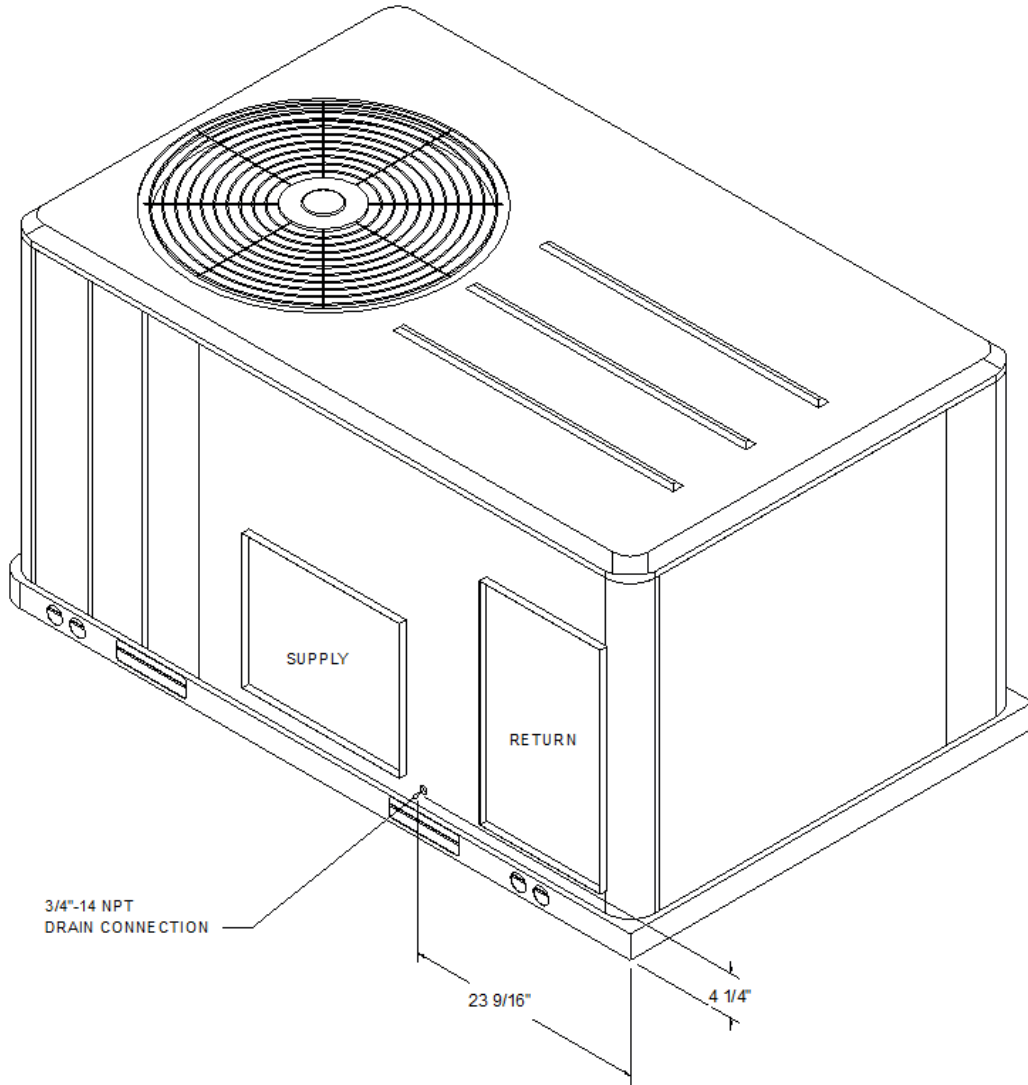


NOTES:  
 1. THRU -THE -BASE GAS AND ELECTRICAL IS NOT STANDARD ON ALL UNITS.  
 2. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION

PLAN VIEW UNIT  
 DIMENSION DRAWING



PACKAGED GAS / ELECTRICAL  
 DIMENSION DRAWING



ISOMETRIC-PACKAGED COOLING



### ELECTRICAL / GENERAL DATA

<b>GENERAL</b> <sup>(2)(4)(6)</sup> Model: YSC048G Oversized Motor Unit Operating Voltage: 187-253 MCA: N/A Unit Primary Voltage: 208 MFS: N/A Unit Secondary Voltage: 230 MCB: N/A Unit Hertz: 60 Unit Phase: 3 EER/SEER 12.0/14.0 Standard Motor MCA: 25.4 MCA: N/A MFS: 35.0 MFS: N/A MCB: 35.0 MCB: N/A		<b>HEATING PERFORMANCE</b> <b>HEATING - GENERAL DATA</b> Heating Model: Medium Heating Input (BTU): 100,000/70,000 Heating Output (BTU): 81,000/56,700 No. Burners: 3 No. Stages: 2 Gas Inlet Pressure Natural Gas (Min/Mix): 4.5/14.0 LP (Min/Max): 11.0/14.0 Gas Pipe Connection Size: 1/2"																						
<b>INDOOR MOTOR</b> <table border="0"> <tr> <td>Standard Motor</td> <td>Oversized Motor</td> <td>Field Installed Oversized Motor</td> </tr> <tr> <td>Number: 1</td> <td>Number: N/A</td> <td>Number: N/A</td> </tr> <tr> <td>Horsepower: 1.0</td> <td>Horsepower: N/A</td> <td>Horsepower: N/A</td> </tr> <tr> <td>Motor Speed (RPM): --</td> <td>Motor Speed (RPM): N/A</td> <td>Motor Speed (RPM): N/A</td> </tr> <tr> <td>Phase: 1</td> <td>Phase: N/A</td> <td>Phase: N/A</td> </tr> <tr> <td>Full Load Amps: 6.9</td> <td>Full Load Amps: N/A</td> <td>Full Load Amps: N/A</td> </tr> <tr> <td>Locked Rotor Amps: --</td> <td>Locked Rotor Amps: N/A</td> <td>Locked Rotor Amps: N/A</td> </tr> </table>				Standard Motor	Oversized Motor	Field Installed Oversized Motor	Number: 1	Number: N/A	Number: N/A	Horsepower: 1.0	Horsepower: N/A	Horsepower: N/A	Motor Speed (RPM): --	Motor Speed (RPM): N/A	Motor Speed (RPM): N/A	Phase: 1	Phase: N/A	Phase: N/A	Full Load Amps: 6.9	Full Load Amps: N/A	Full Load Amps: N/A	Locked Rotor Amps: --	Locked Rotor Amps: N/A	Locked Rotor Amps: N/A
Standard Motor	Oversized Motor	Field Installed Oversized Motor																						
Number: 1	Number: N/A	Number: N/A																						
Horsepower: 1.0	Horsepower: N/A	Horsepower: N/A																						
Motor Speed (RPM): --	Motor Speed (RPM): N/A	Motor Speed (RPM): N/A																						
Phase: 1	Phase: N/A	Phase: N/A																						
Full Load Amps: 6.9	Full Load Amps: N/A	Full Load Amps: N/A																						
Locked Rotor Amps: --	Locked Rotor Amps: N/A	Locked Rotor Amps: N/A																						
<b>COMPRESSOR</b> Circuit 1/2 Number: 1 Horsepower: 3.6 Phase: 3 Rated Load Amps: 13.7 Locked Rotor Amps: 83.1		<b>OUTDOOR MOTOR</b> Number: 1 Horsepower: 0.33 Motor Speed (RPM): 1100 Phase: 1 Full Load Amps: 1.4 Locked Rotor Amps: 4.6																						
<b>POWER EXHAUST ACCESSORY</b> <sup>(3)</sup> (Field Installed Power Exhaust) Phase: N/A Horsepower: N/A Motor Speed (RPM): N/A Full Load Amps: N/A Locked Rotor Amps: N/A		<b>FILTERS</b> Type: Throwaway Furnished: Yes Number: 2 Recommended: 20"x35"x2"																						
<b>REFRIGERANT</b> <sup>(2)</sup> Type Factory Charge Circuit #1: 3 1/2" Circuit #2: N/A																								

**NOTES:**

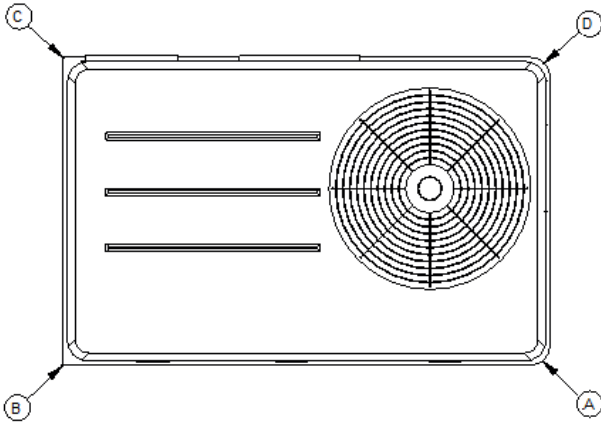
1. Maximum (HACR) Circuit Breaker sizing is for installations in the United States only.
2. Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
3. Value does not include Power Exhaust Accessory.
4. Value includes oversized motor.
5. Value does not include Power Exhaust Accessory.
6. EER is rated at AHRI conditions and in accordance with DOE test procedures.

**INSTALLED ACCESSORIES NET WEIGHT DATA**

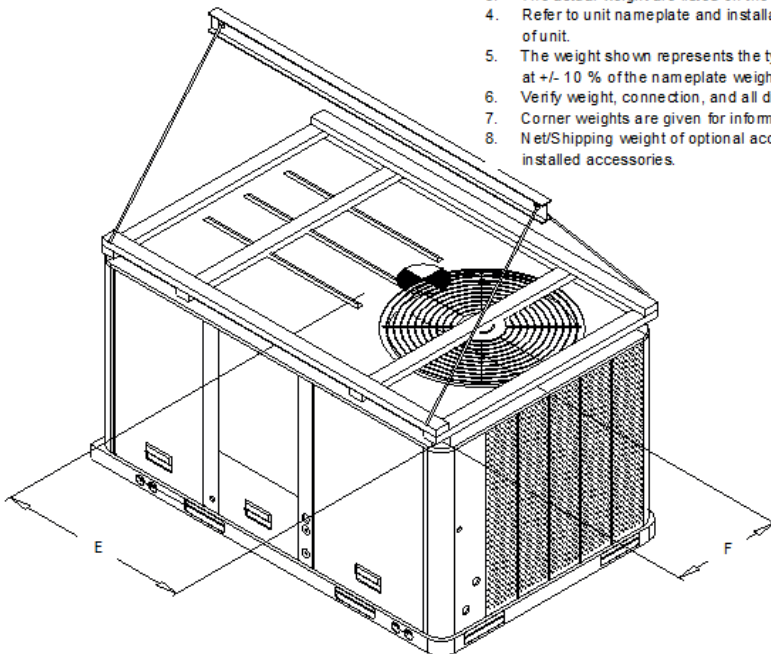
ACCESSORY		WEIGHTS			
ECONOMIZER					
MOTORIZED OUTSIDE AIR DAMPER					
MANUAL OUTSIDE AIR DAMPER					
BAROMETRIC RELIEF					
OVERSIZED MOTOR					
BELT DRIVE MOTOR					
POWER EXHAUST					
THROUGH THE BASE ELECTRICAL/GAS (FIOPS)					
UNIT MOUNTED CIRCUIT BREAKER (FIOPS)					
UNIT MOUNTED DISCONNECT (FIOPS)					
POWERED CONVENIENCE OUTLET (FIOPS)					
HINGED DOORS (FIOPS)					
HAIL GUARD					
SMOKE DETECTOR, SUPPLY / RETURN					
NOVAR CONTROL					
STAINLESS STEEL HEAT EXCHANGER					
REHEAT					
ROOF CURB					
BASIC UNIT WEIGHTS		CORNER WEIGHTS		CENTER OF GRAVITY	
SHIPPING	NET	(A)	(C)	(E) LENGHT	(F) WIDTH
598.0 lb	492.0 lb	(B)	183.0 lb	(D)	58.0 lb
				33"	9"

**NOTE:**

- All weights are approximate.
- Weights for options that are not list refer to Installation guide.
- The actual weight are listed on the unit nameplate.
- Refer to unit nameplate and installation guide for weights before scheduling transportation and installation of unit.
- The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10 % of the nameplate weight.
- Verify weight, connection, and all dimension with installer documents before installation.
- Corner weights are given for information only.
- Net/Shipping weight of optional accessories should be added to unit weight when ordering factory or field installed accessories.



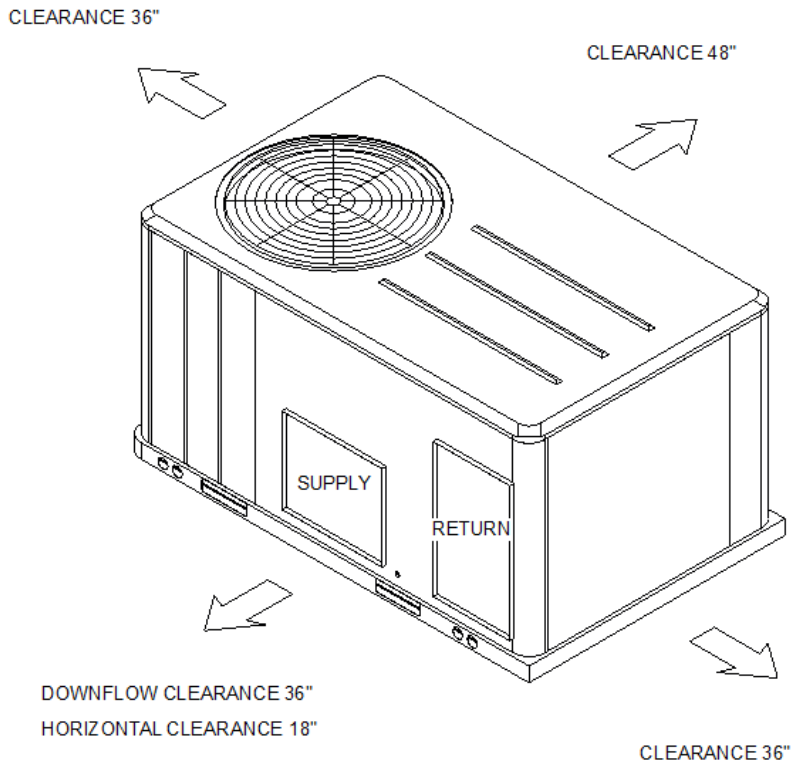
**PACKAGED GAS / ELECTRICAL**  
CORNER WEIGHT



**PACKAGED GAS / ELECTRICAL**  
RIGGING AND CENTER OF GRAVITY

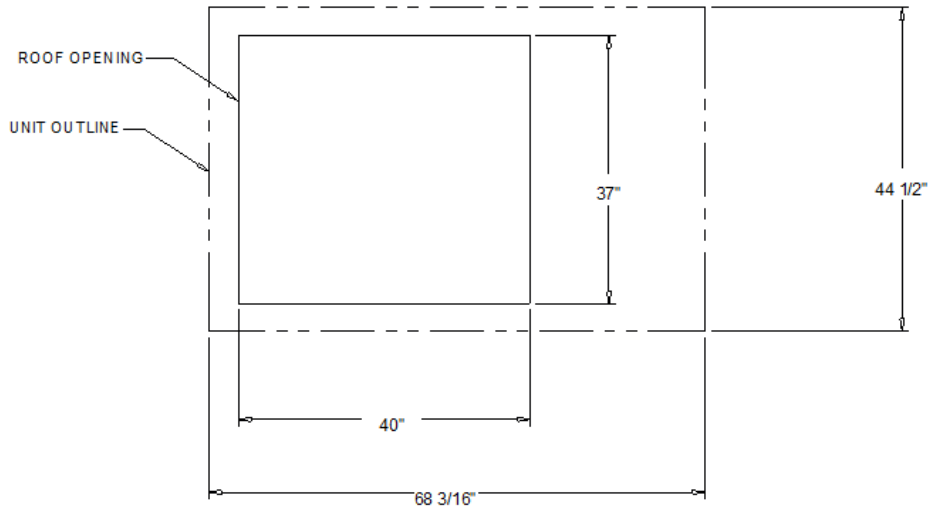


CLEARANCE FROM TOP OF UNIT 72"



PACKAGED GAS / ELECTRIC

CLEARANCE



PACKAGED GAS / ELECTRIC

DOWNFLOW TYPICAL ROOF OPENING



## General

The units shall be convertible airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for units with microprocessor controls. Operating range for units with electromechanical controls shall be between 115°F and 40°F. Cooling performance shall be rated in accordance with ARI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.

## Casing

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. Service panels shall have lifting handles and be removed and reinstalled by removing two fasteners while providing a water and air tight seal. All exposed vertical panels and top covers in the indoor air section shall be insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material. The base of the unit shall be insulated with 1/8 inch, foil-faced, closed-cell insulation. All insulation edges shall be either captured or sealed. The unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8 inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting, with forklift capabilities on three sides of the unit.

## Unit Top

The top cover shall be one piece construction or, where seams exist, it shall be double-hemmed and gasket-sealed. The ribbed top adds extra strength and enhances water removal from unit top.

## Filters

Throwaway filters shall be standard on all units. Optional 2-inch MERV 8 and MERV 13 filters shall also be available.

## Compressors

All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.

Dual compressors are outstanding for humidity control, light load cooling conditions and system back-up applications. Dual compressors are available on 7½-10 ton models and allow for efficient cooling utilizing 3-stages of compressor operation for all high efficiency models.

## Indoor Fan

The following units shall be equipped with a direct drive plenum fan design (T/YSC120F, T/YHC074F, T/YHC092F, T/YHC102F, 120F). Plenum fan design shall include a backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor. All plenum fan designs will have a variable speed adjustment potentiometer located in the control box.

3 to 5 ton units (high efficiency 3-phase with optional motor) are belt driven, FC centrifugal fans with adjustable motor sheaves. 3 to 5 ton units (standard and high efficiency 3-phase) have multispeed, direct drive motors. All 6 to 8½ ton units (standard efficiency) shall have belt drive motors with an adjustable idler-arm assembly for quick-adjustment to fan belts and motor sheaves. All motors shall be thermally protected. All 10 tons, 6 ton (074), 7½ to 8½ (high efficiency) units have variable speed direct drive motors. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).



## Outdoor Fans

The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor shall be permanently lubricated and shall have built-in thermal overload protection.

## Evaporator and Condenser Coils

Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Evaporator coils are standard for all 3 to 10 ton standard efficiency models. Microchannel condenser coils are standard for all 3 to 10 ton standard efficiency models and 4, 5, 6, 7.5, 8.5 ton high efficiency models. The microchannel type condenser coil is not offered on the 4 and 5 ton dehumidification model. Due to flat streamlined tubes with small ports, and metallurgical tube-to-fin bond, microchannel coil has better heat transfer performance. Microchannel condenser coil can reduce system refrigerant charge by up to 50% because of smaller internal volume, which leads to better compressor reliability. Compact all-aluminum microchannel coils also help to reduce the unit weight. These all aluminum coils are recyclable. Galvanic corrosion is also minimized due to all aluminum construction. Strong aluminum brazed structure provides better fin protection. In addition, flat streamlined tubes also make microchannel coils more dust resistant and easier to clean. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 600 psig. The assembled unit shall be leak tested to 465 psig. The condenser coil shall have a patent pending 1+1+1 hybrid coil designed with slight gaps for ease of cleaning. A plastic, dual-sloped, removable and reversible condensate drain pan with through-the-base condensate drain is standard.

## Controls

Unit shall be completely factory-wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device. A choice of microprocessor or electromechanical controls shall be available. Microprocessor controls provide for all 24V control functions. The resident control algorithms shall make all heating, cooling, and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection. 24-volt electromechanical control circuit shall include control transformer and contactor

## High Pressure Control

All units include High Pressure Cutout as standard.

## Phase monitor

Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitor is equipped with an LED that provides an ON or FAULT indicator. There are no field adjustments. The module will automatically reset from a fault condition.

## Refrigerant Circuits

Each refrigerant circuit offer thermal expansion valve as standard. Service pressure ports, and refrigerant line filter driers are factory-installed as standard. An area shall be provided for replacement suction line driers.



## **Gas Heating Section**

The heating section shall have a progressive tubular heat exchanger design using stainless steel burners

and corrosion resistant steel throughout. An induced draft combustion blower shall be used to pull the combustion products through the firing tubes. The heater shall use a direct spark ignition (DSI) system. On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat/zone sensor. Units shall be suitable for use with natural gas or propane (field-installed kit) and also comply with the California requirement for low NOx emissions (Gas/Electric Only).



# Trane Precedent Gas/Electric Packaged Rooftop

## Unit Overview - YSC060G3EMB\*\*000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Weight		EER	IEER/SEER
		Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum		
DX cooling, gas heat	5 Ton (060)	2000 cfm	0.500 in H2O	3.41 ft	3.69 ft	5.82 ft	522.0 lb	797.0 lb	12.0 EER	

### Unit Features

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	28.30 A
<b>MOP</b>	40.00 A



### Controls

**Unit Controls** Electro mechanical controls 3ph

### Cooling Section

Cooling Section		Capacity	
<b>Entering Dry Bulb</b>	80.00 F	<b>Gross Total</b>	59.98 MBh
<b>Entering Wet Bulb</b>	67.00 F	<b>Gross Sensible</b>	49.31 MBh
<b>Ambient Temp</b>	95.00 F	<b>Net Total</b>	57.75 MBh
<b>Leaving Coil Dry Bulb</b>	57.55 F	<b>Net Sensible</b>	47.08 MBh
<b>Leaving Coil Wet Bulb</b>	57.55 F	<b>Fan Motor Heat</b>	2.22 MBh
<b>Leaving Unit Dry Bulb</b>	59.34 F	<b>Refrig Charge-circuit 1</b>	4.8 lb
<b>Leaving Unit Wet Bulb</b>	58.24 F		
<b>Refrigeration System Options</b>			
<b>Leaving Dew Point</b>	57.56 F		

### Heating Section

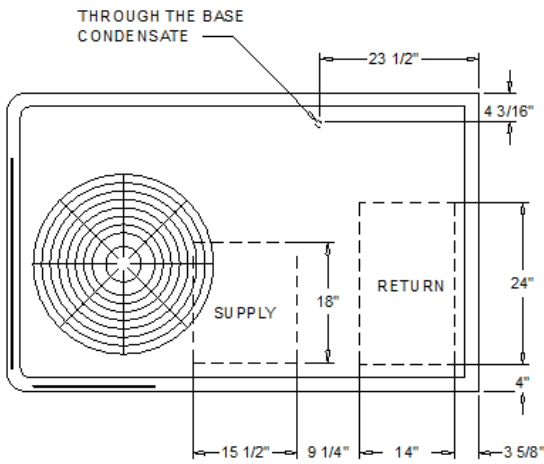
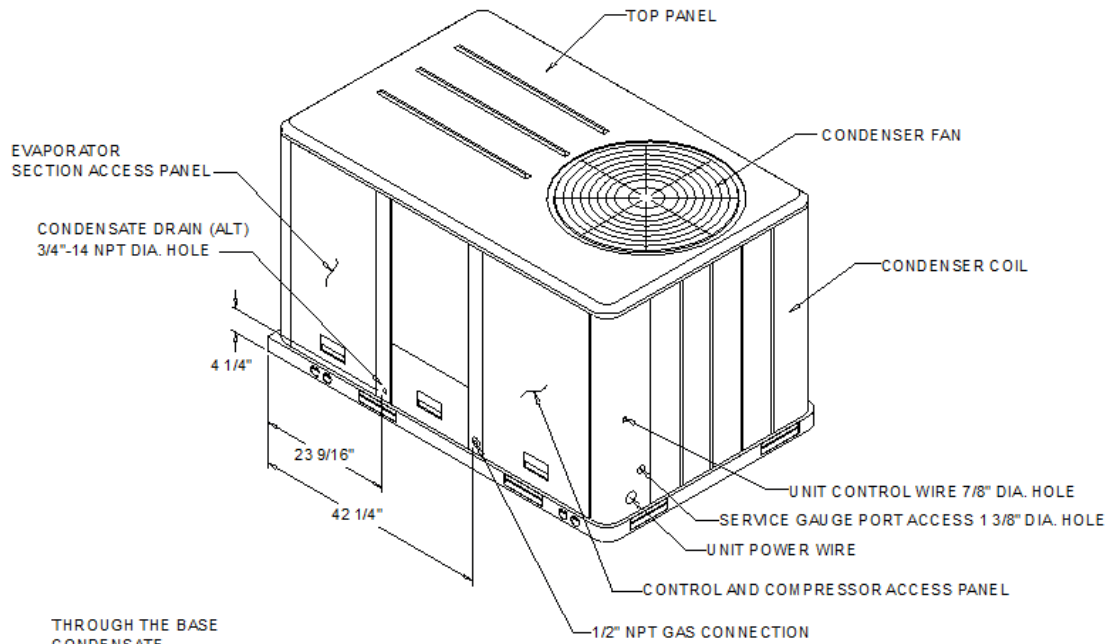
<b>Heating Stages</b>	2
<b>Output Heating Capacity</b>	81.00 MBh
<b>Output Heating Capacity with Fan</b>	83.22 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	107.80 F
<b>Heating Temp Rise</b>	37.80 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
<b>Type</b>	FC Centrifugal	<b>Type</b>	Propeller
<b>Drive Type</b>	Direct	<b>Fan Quantity</b>	1
<b>Indoor Fan Performance</b>		<b>Drive Type</b>	Direct
<b>Airflow</b>	2000 cfm	<b>Outdoor Fan Performance</b>	
<b>Design ESP</b>	0.500 in H2O	<b>Condenser Fan FLA</b>	0.00 A
<b>Indoor Motor Operating Power</b>	0.72 bhp	<b>Exhaust Fan Data</b>	
<b>Indoor Motor Power</b>	0.54 kW	<b>Type</b>	FC Centrifugal
<b>Indoor RPM</b>	1027 rpm	<b>Drive Type</b>	Direct
<b>Indoor Fan FLA</b>	0.00 A	<b>Exhaust Fan Performance</b>	
		<b>Exhaust Fan FLA</b>	0.00 A

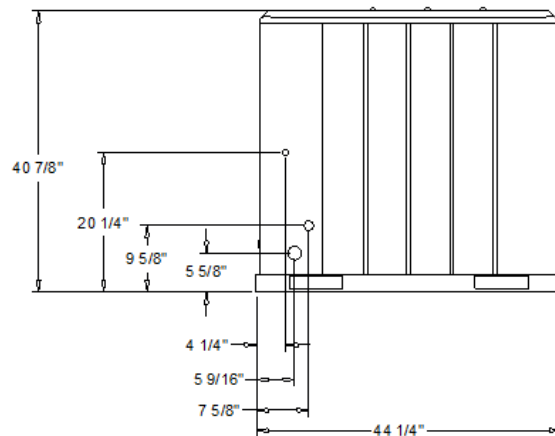
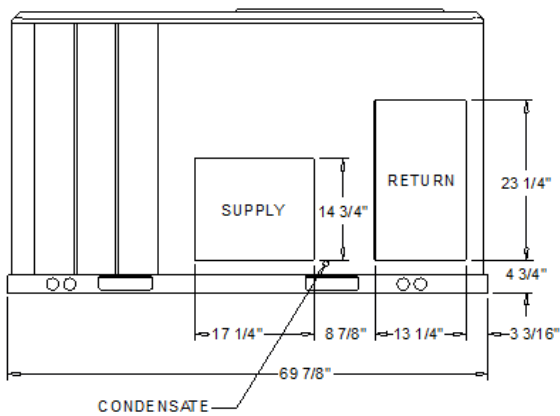
### Compressor Section

<b>Power</b>	0.00 kW
<b>Circuit 1 RLA</b>	0.00 A
<b>Circuit 2 RLA</b>	1.40 A



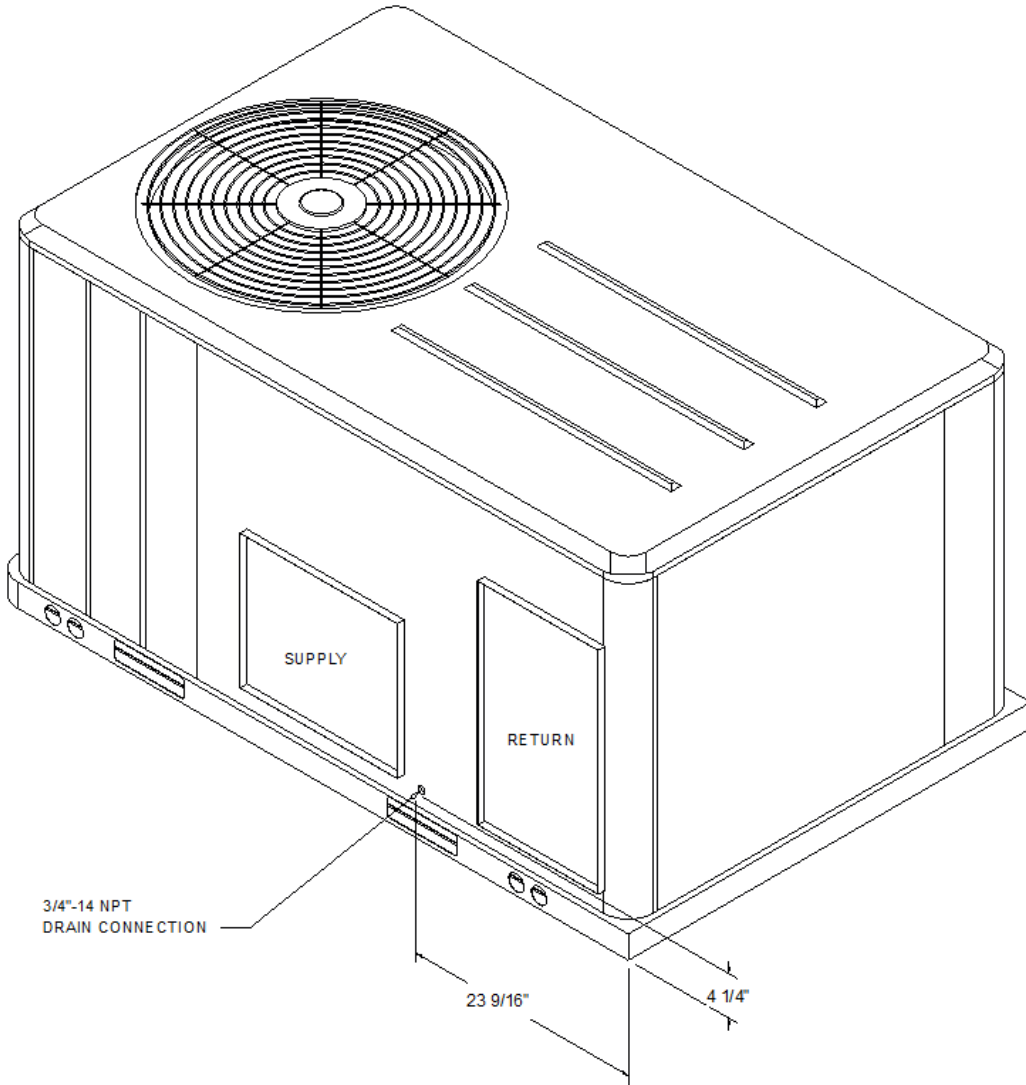
NOTES:  
 1. THRU -THE -BASE GAS AND ELECTRICAL IS NOT STANDARD ON ALL UNITS.  
 2. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION

PLAN VIEW UNIT  
 DIMENSION DRAWING



→  
 HORIZONTAL  
 AIR FLOW

PACKAGED GAS / ELECTRICAL  
 DIMENSION DRAWING



ISOMETRIC-PACKAGED COOLING



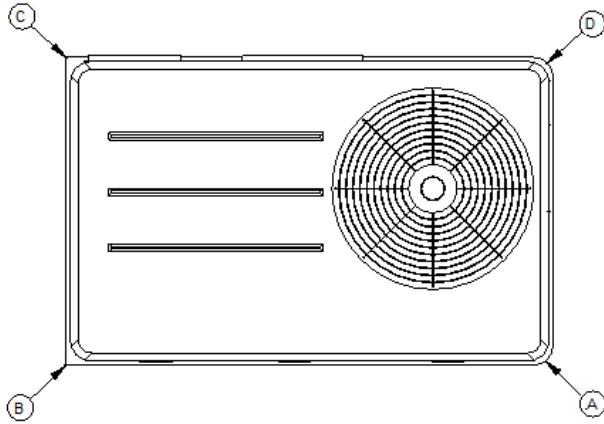
### ELECTRICAL / GENERAL DATA

<b>GENERAL</b> <sup>(2)(4)(6)</sup> Model: YSC060G Oversized Motor Unit Operating Voltage: 187-253 MCA: N/A Unit Primary Voltage: 208 MFS: N/A Unit Secondary Voltage: 230 MCB: N/A Unit Hertz: 60 Unit Phase: 3 EER/SEER 12.0/14.0 Standard Motor MCA: 28.2 MCA: N/A MFS: 40.0 MFS: N/A MCB: 40.0 MCB: N/A		<b>HEATING PERFORMANCE</b> <b>HEATING - GENERAL DATA</b> Heating Model: Medium Heating Input (BTU): 100,000/70,000 Heating Output (BTU): 81,000/56,700 No. Burners: 3 No. Stages: 2 Gas Inlet Pressure Natural Gas (Min/Mix): 4.5/14.0 LP (Min/Max): 11.0/14.0 Gas Pipe Connection Size: 1/2"																						
<b>INDOOR MOTOR</b> <table border="0"> <tr> <td>Standard Motor</td> <td>Oversized Motor</td> <td>Field Installed Oversized Motor</td> </tr> <tr> <td>Number: 1</td> <td>Number: N/A</td> <td>Number: N/A</td> </tr> <tr> <td>Horsepower: 1.0</td> <td>Horsepower: N/A</td> <td>Horsepower: N/A</td> </tr> <tr> <td>Motor Speed (RPM): --</td> <td>Motor Speed (RPM): N/A</td> <td>Motor Speed (RPM): N/A</td> </tr> <tr> <td>Phase: 1</td> <td>Phase: N/A</td> <td>Phase: N/A</td> </tr> <tr> <td>Full Load Amps: 6.9</td> <td>Full Load Amps: N/A</td> <td>Full Load Amps: N/A</td> </tr> <tr> <td>Locked Rotor Amps: --</td> <td>Locked Rotor Amps: N/A</td> <td>Locked Rotor Amps: N/A</td> </tr> </table>				Standard Motor	Oversized Motor	Field Installed Oversized Motor	Number: 1	Number: N/A	Number: N/A	Horsepower: 1.0	Horsepower: N/A	Horsepower: N/A	Motor Speed (RPM): --	Motor Speed (RPM): N/A	Motor Speed (RPM): N/A	Phase: 1	Phase: N/A	Phase: N/A	Full Load Amps: 6.9	Full Load Amps: N/A	Full Load Amps: N/A	Locked Rotor Amps: --	Locked Rotor Amps: N/A	Locked Rotor Amps: N/A
Standard Motor	Oversized Motor	Field Installed Oversized Motor																						
Number: 1	Number: N/A	Number: N/A																						
Horsepower: 1.0	Horsepower: N/A	Horsepower: N/A																						
Motor Speed (RPM): --	Motor Speed (RPM): N/A	Motor Speed (RPM): N/A																						
Phase: 1	Phase: N/A	Phase: N/A																						
Full Load Amps: 6.9	Full Load Amps: N/A	Full Load Amps: N/A																						
Locked Rotor Amps: --	Locked Rotor Amps: N/A	Locked Rotor Amps: N/A																						
<b>COMPRESSOR</b> Circuit 1/2 Number: 1 Horsepower: 4.3 Phase: 3 Rated Load Amps: 15.9 Locked Rotor Amps: 110.0		<b>OUTDOOR MOTOR</b> Number: 1 Horsepower: 0.40 Motor Speed (RPM): 1100 Phase: 1 Full Load Amps: 1.4 Locked Rotor Amps: 5.2																						
<b>POWER EXHAUST ACCESSORY</b> <sup>(3)</sup> (Field Installed Power Exhaust) Phase: N/A Horsepower: N/A Motor Speed (RPM): N/A Full Load Amps: N/A Locked Rotor Amps: N/A		<b>FILTERS</b> Type: Throwaway Furnished: Yes Number: 2 Recommended: 20"x35"x2"																						
<b>REFRIGERANT</b> <sup>(2)</sup> Type Factory Charge Circuit #1: 4.8 lb Circuit #2: N/A																								

**NOTES:**

1. Maximum (HACR) Circuit Breaker sizing is for installations in the United States only.
2. Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
3. Value does not include Power Exhaust Accessory.
4. Value includes oversized motor.
5. Value does not include Power Exhaust Accessory.
6. EER is rated at AHRI conditions and in accordance with DOE test procedures.

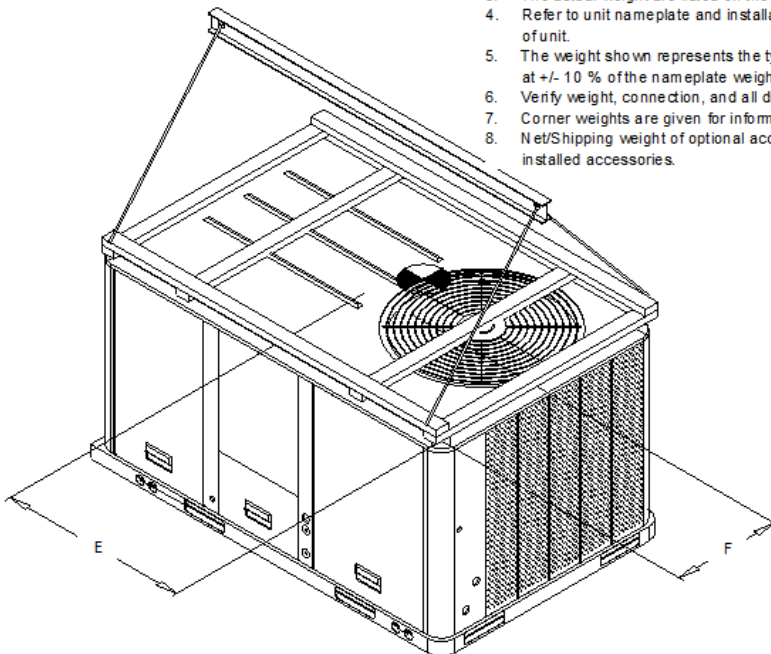


**INSTALLED ACCESSORIES NET WEIGHT DATA**

**PACKAGED GAS / ELECTRICAL**  
 CORNER WEIGHT

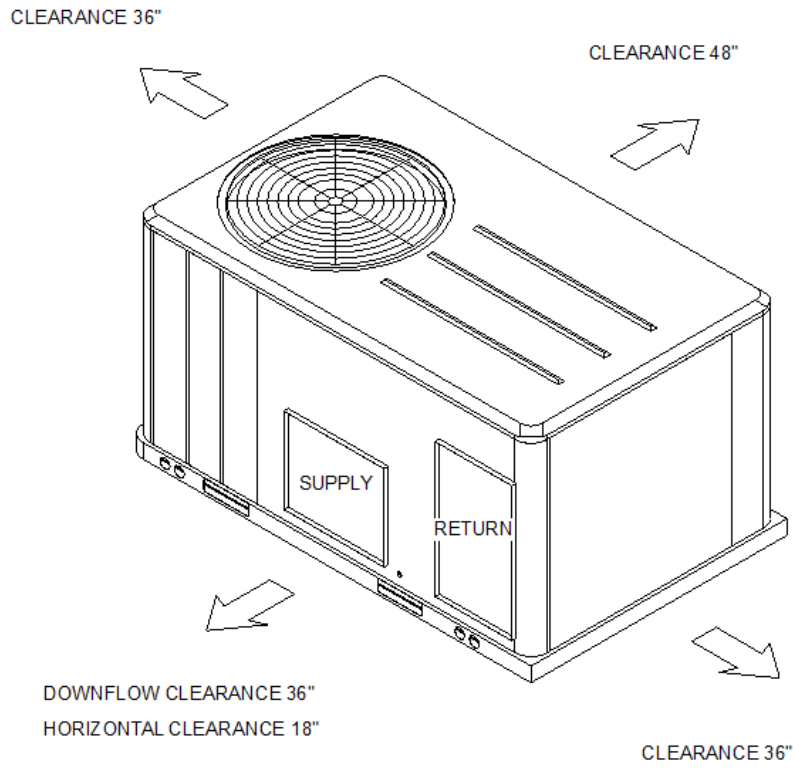
ACCESSORY		WEIGHTS			
ECONOMIZER					
MOTORIZED OUTSIDE AIR DAMPER					
MANUAL OUTSIDE AIR DAMPER					
BAROMETRIC RELIEF					
OVERSIZED MOTOR					
BELT DRIVE MOTOR					
POWER EXHAUST					
THROUGH THE BASE ELECTRICAL/GAS (FIOPS)					
UNIT MOUNTED CIRCUIT BREAKER (FIOPS)					
UNIT MOUNTED DISCONNECT (FIOPS)					
POWERED CONVENIENCE OUTLET (FIOPS)					
HINGED DOORS (FIOPS)					
HAIL GUARD					
SMOKE DETECTOR, SUPPLY / RETURN					
NOVAR CONTROL					
STAINLESS STEEL HEAT EXCHANGER					
REHEAT					
ROOF CURB					
BASIC UNIT WEIGHTS		CORNER WEIGHTS		CENTER OF GRAVITY	
SHIPPING	NET	(A)	(C)	(E) LENGHT	(F) WIDTH
627.0 lb	522.0 lb	(B) 193.0 lb	(D) 63.0 lb	33"	10"

**NOTE:**

1. All weights are approximate.
2. Weights for options that are not list refer to Installation guide.
3. The actual weight are listed on the unit nameplate.
4. Refer to unit nameplate and installation guide for weights before scheduling transportation and installation of unit.
5. The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10 % of the nameplate weight.
6. Verify weight, connection, and all dimension with installer documents before installation.
7. Corner weights are given for information only.
8. Net/Shipping weight of optional accessories should be added to unit weight when ordering factory or field installed accessories.

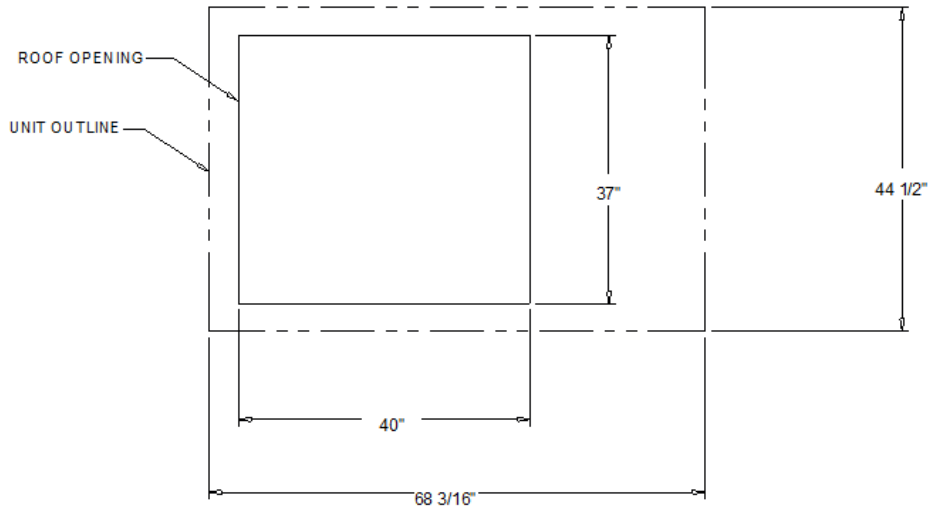

**PACKAGED GAS / ELECTRICAL**  
 RIGGING AND CENTER OF GRAVITY

CLEARANCE FROM TOP OF UNIT 72"



PACKAGED GAS / ELECTRIC

CLEARANCE



PACKAGED GAS / ELECTRIC

DOWNFLOW TYPICAL ROOF OPENING



## General

The units shall be convertible airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for units with microprocessor controls. Operating range for units with electromechanical controls shall be between 115°F and 40°F. Cooling performance shall be rated in accordance with ARI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.

## Casing

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. Service panels shall have lifting handles and be removed and reinstalled by removing two fasteners while providing a water and air tight seal. All exposed vertical panels and top covers in the indoor air section shall be insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material. The base of the unit shall be insulated with 1/8 inch, foil-faced, closed-cell insulation. All insulation edges shall be either captured or sealed. The unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8 inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting, with forklift capabilities on three sides of the unit.

## Unit Top

The top cover shall be one piece construction or, where seams exist, it shall be double-hemmed and gasket-sealed. The ribbed top adds extra strength and enhances water removal from unit top.

## Filters

Throwaway filters shall be standard on all units. Optional 2-inch MERV 8 and MERV 13 filters shall also be available.

## Compressors

All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.

Dual compressors are outstanding for humidity control, light load cooling conditions and system back-up applications. Dual compressors are available on 7½-10 ton models and allow for efficient cooling utilizing 3-stages of compressor operation for all high efficiency models.

## Indoor Fan

The following units shall be equipped with a direct drive plenum fan design (T/YSC120F, T/YHC074F, T/YHC092F, T/YHC102F, 120F). Plenum fan design shall include a backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor. All plenum fan designs will have a variable speed adjustment potentiometer located in the control box.

3 to 5 ton units (high efficiency 3-phase with optional motor) are belt driven, FC centrifugal fans with adjustable motor sheaves. 3 to 5 ton units (standard and high efficiency 3-phase) have multispeed, direct drive motors. All 6 to 8½ ton units (standard efficiency) shall have belt drive motors with an adjustable idler-arm assembly for quick-adjustment to fan belts and motor sheaves. All motors shall be thermally protected. All 10 tons, 6 ton (074), 7½ to 8½ (high efficiency) units have variable speed direct drive motors. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).



## **Outdoor Fans**

The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor shall be permanently lubricated and shall have built-in thermal overload protection.

## **Evaporator and Condenser Coils**

Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Evaporator coils are standard for all 3 to 10 ton standard efficiency models. Microchannel condenser coils are standard for all 3 to 10 ton standard efficiency models and 4, 5, 6, 7.5, 8.5 ton high efficiency models. The microchannel type condenser coil is not offered on the 4 and 5 ton dehumidification model. Due to flat streamlined tubes with small ports, and metallurgical tube-to-fin bond, microchannel coil has better heat transfer performance. Microchannel condenser coil can reduce system refrigerant charge by up to 50% because of smaller internal volume, which leads to better compressor reliability. Compact all-aluminum microchannel coils also help to reduce the unit weight. These all aluminum coils are recyclable. Galvanic corrosion is also minimized due to all aluminum construction. Strong aluminum brazed structure provides better fin protection. In addition, flat streamlined tubes also make microchannel coils more dust resistant and easier to clean. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 600 psig. The assembled unit shall be leak tested to 465 psig. The condenser coil shall have a patent pending 1+1+1 hybrid coil designed with slight gaps for ease of cleaning. A plastic, dual-sloped, removable and reversible condensate drain pan with through-the-base condensate drain is standard.

## **Controls**

Unit shall be completely factory-wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device. A choice of microprocessor or electromechanical controls shall be available. Microprocessor controls provide for all 24V control functions. The resident control algorithms shall make all heating, cooling, and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection. 24-volt electromechanical control circuit shall include control transformer and contactor

## **High Pressure Control**

All units include High Pressure Cutout as standard.

## **Phase monitor**

Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitor is equipped with an LED that provides an ON or FAULT indicator. There are no field adjustments. The module will automatically reset from a fault condition.

## **Refrigerant Circuits**

Each refrigerant circuit offer thermal expansion valve as standard. Service pressure ports, and refrigerant line filter driers are factory-installed as standard. An area shall be provided for replacement suction line driers.



### **Gas Heating Section**

The heating section shall have a progressive tubular heat exchanger design using stainless steel burners

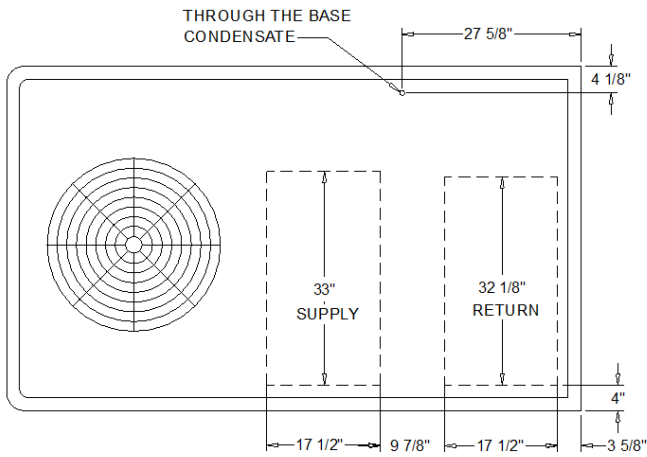
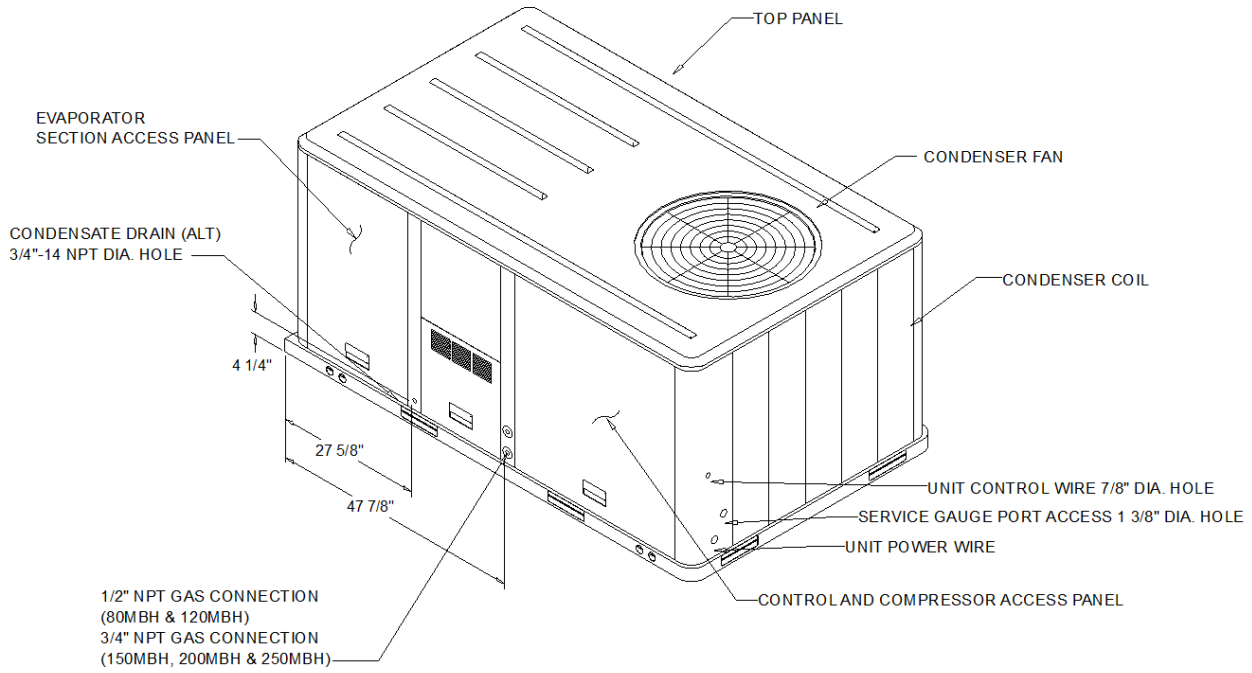
and corrosion resistant steel throughout. An induced draft combustion blower shall be used to pull the combustion products through the firing tubes. The heater shall use a direct spark ignition (DSI) system. On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat/zone sensor. Units shall be suitable for use with natural gas or propane (field-installed kit) and also comply with the California requirement for low NOx emissions (Gas/Electric Only).





### Compressor Section

<b>Power</b>	6.53 kW
<b>Circuit 1 RLA</b>	25.00 A
<b>Circuit 2 RLA</b>	0.00 A

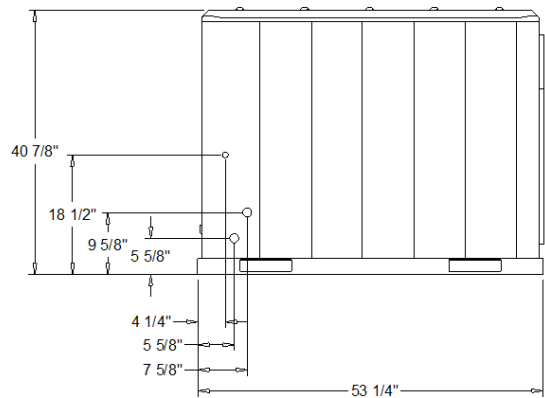
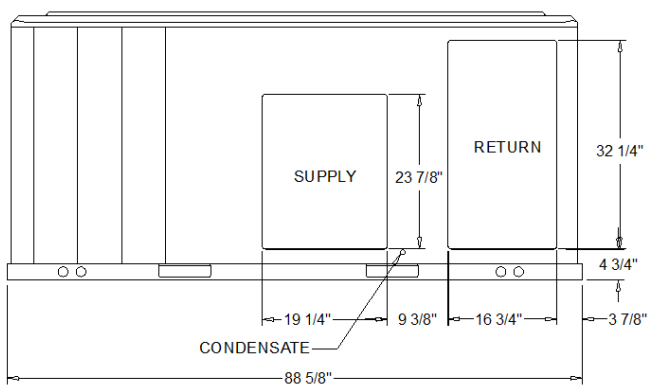


PLAN VIEW UNIT

DIMENSION DRAWING

NOTES:

1. THRU -THE -BASE ELECTRICAL AND GAS IS NOT STANDARD ON ALL UNITS.
2. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



HORIZONTAL AIR FLOW

PACKAGED GAS / ELECTRICAL

DIMENSION DRAWING





### ELECTRICAL / GENERAL DATA

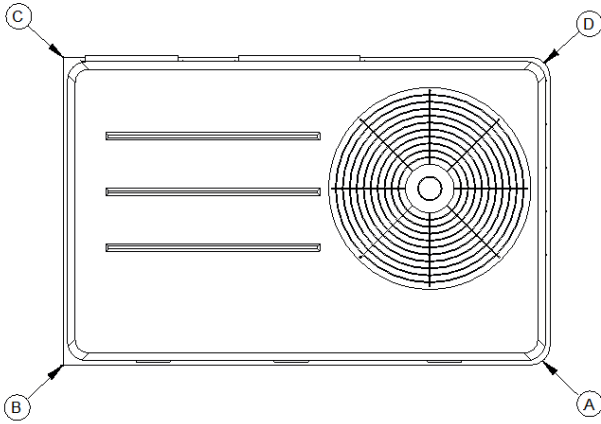
<b>GENERAL</b> <sup>(2)(4)(6)</sup> Model: YSC090H Oversized Motor Unit Operating Voltage: 187-253 MCA: N/A Unit Primary Voltage: 208 MFS: N/A Unit Secondary Voltage: 230 MCB: N/A Unit Hertz: 60 Unit Phase: 3 EER 11.2 Standard Motor MCA: 38.0 MCA: N/A MFS: 60.0 MFS: N/A MCB: 60.0 MCB: N/A		<b>HEATING PERFORMANCE</b> HEATING - GENERAL DATA Heating Model: Medium Heating Input (BTU): 150,000/105,000 Heating Output (BTU): 120,000/84,000 No. Burners: 3 No. Stages: 2 Gas Inlet Pressure Natural Gas (Min/Mix): 4.5/14.0 LP (Min/Max): 11.0/14.0 Gas Pipe Connection Size: 3/4"																						
<b>INDOOR MOTOR</b> <table border="0"> <tr> <td>Standard Motor</td> <td>Oversized Motor</td> <td>Field Installed Oversized Motor</td> </tr> <tr> <td>Number:</td> <td>Number: N/A</td> <td>Number: N/A</td> </tr> <tr> <td>Horsepower:</td> <td>Horsepower: N/A</td> <td>Horsepower: N/A</td> </tr> <tr> <td>Motor Speed (RPM):</td> <td>Motor Speed (RPM): N/A</td> <td>Motor Speed (RPM): N/A</td> </tr> <tr> <td>Phase:</td> <td>Phase: N/A</td> <td>Phase: N/A</td> </tr> <tr> <td>Full Load Amps:</td> <td>Full Load Amps: N/A</td> <td>Full Load Amps: N/A</td> </tr> <tr> <td>Locked Rotor Amps:</td> <td>Locked Rotor Amps: N/A</td> <td>Locked Rotor Amps: N/A</td> </tr> </table>				Standard Motor	Oversized Motor	Field Installed Oversized Motor	Number:	Number: N/A	Number: N/A	Horsepower:	Horsepower: N/A	Horsepower: N/A	Motor Speed (RPM):	Motor Speed (RPM): N/A	Motor Speed (RPM): N/A	Phase:	Phase: N/A	Phase: N/A	Full Load Amps:	Full Load Amps: N/A	Full Load Amps: N/A	Locked Rotor Amps:	Locked Rotor Amps: N/A	Locked Rotor Amps: N/A
Standard Motor	Oversized Motor	Field Installed Oversized Motor																						
Number:	Number: N/A	Number: N/A																						
Horsepower:	Horsepower: N/A	Horsepower: N/A																						
Motor Speed (RPM):	Motor Speed (RPM): N/A	Motor Speed (RPM): N/A																						
Phase:	Phase: N/A	Phase: N/A																						
Full Load Amps:	Full Load Amps: N/A	Full Load Amps: N/A																						
Locked Rotor Amps:	Locked Rotor Amps: N/A	Locked Rotor Amps: N/A																						
<b>COMPRESSOR</b> Circuit 1/2 Number: 1 Horsepower: 6.7 Phase: 3 Rated Load Amps: 25.0 Locked Rotor Amps: 164.0		<b>OUTDOOR MOTOR</b> Number: 1 Horsepower: 0.7 Motor Speed (RPM): 1100 Phase: 1 Full Load Amps: 3.3 Locked Rotor Amps: 12.3																						
<b>POWER EXHAUST ACCESSORY</b> <sup>(3)</sup> (Field Installed Power Exhaust) Phase: N/A Horsepower: N/A Motor Speed (RPM): N/A Full Load Amps: N/A Locked Rotor Amps: N/A		<b>FILTERS</b> Type: Throwaway Furnished: Yes Number: 4 Recommended: 16"x25"x2"																						
<b>REFRIGERANT</b> <sup>(2)</sup> Type Factory Charge Circuit #1: 7.5 lb Circuit #2: N/A																								

**NOTES:**

1. Maximum (HACR) Circuit Breaker sizing is for installations in the United States only.
2. Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
3. Value does not include Power Exhaust Accessory.
4. Value includes oversized motor.
5. Value does not include Power Exhaust Accessory.
6. EER is rated at AHRI conditions and in accordance with DOE test procedures.

**INSTALLED ACCESSORIES NET WEIGHT DATA**

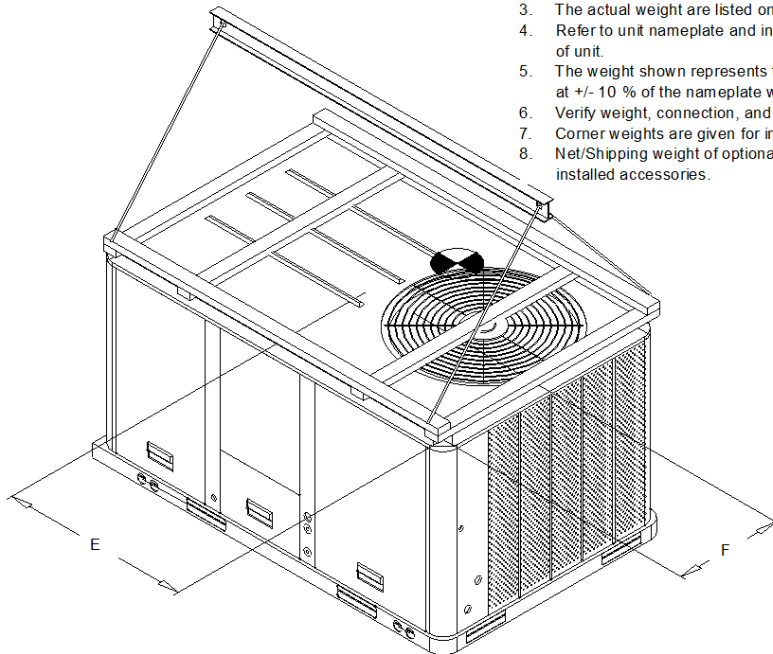
ACCESSORY		WEIGHTS			
ECONOMIZER		36.0 lb			
MOTORIZED OUTSIDE AIR DAMPER					
MANUAL OUTSIDE AIR DAMPER					
BAROMETRIC RELIEF					
OVERSIZED MOTOR					
BELT DRIVE MOTOR					
POWER EXHAUST					
THROUGH THE BASE ELECTRICAL/GAS (FIOPS)					
UNIT MOUNTED CIRCUIT BREAKER (FIOPS)					
UNIT MOUNTED DISCONNECT (FIOPS)					
POWERED CONVENIENCE OUTLET (FIOPS)					
HINGED DOORS (FIOPS)					
HAIL GUARD					
SMOKE DETECTOR, SUPPLY / RETURN					
NOVAR CONTROL					
STAINLESS STEEL HEAT EXCHANGER					
REHEAT					
ROOF CURB					
BASIC UNIT WEIGHTS		CORNER WEIGHTS		CENTER OF GRAVITY	
SHIPPING	NET	(A)	(C)	(E) LENGHT	(F) WIDTH
853.0 lb	760.0 lb	(B)	237.0 lb	(D)	190.0 lb
				36"	22"



**PACKAGED GAS / ELECTRICAL**  
CORNER WEIGHT

**NOTE:**

1. All weights are approximate.
2. Weights for options that are not list refer to Installation guide.
3. The actual weight are listed on the unit nameplate.
4. Refer to unit nameplate and installation guide for weights before scheduling transportation and installation of unit.
5. The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10 % of the nameplate weight.
6. Verify weight, connection, and all dimension with installer documents before installation.
7. Corner weights are given for information only.
8. Net/Shipping weight of optional accessories should be added to unit weight when ordering factory or field installed accessories.



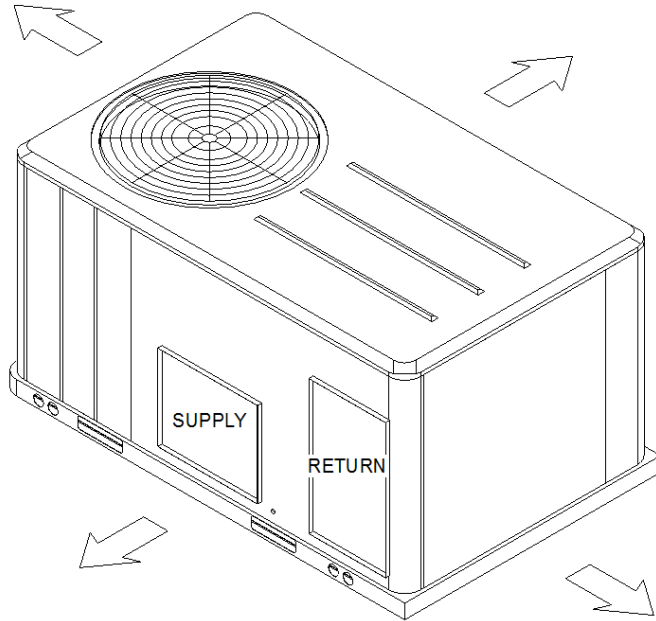
**PACKAGED GAS / ELECTRICAL**  
RIGGING AND CENTER OF GRAVITY



CLEARANCE 36"

CLEARANCE FROM TOP OF UNIT 72"

CLEARANCE 48"



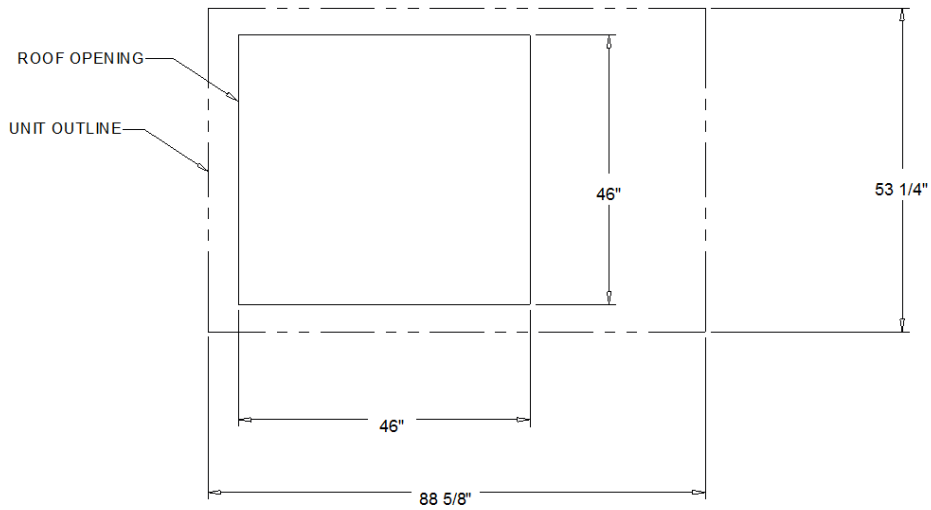
DOWNFLOW CLEARANCE 36"

HORIZONTAL CLEARANCE 18"

CLEARANCE 36"

PACKAGED GAS / ELECTRIC

CLEARANCE



PACKAGED GAS / ELECTRIC

DOWNFLOW TYPICAL ROOF OPENING



## General

The units shall be convertible airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for units with microprocessor controls. Operating range for units with electromechanical controls shall be between 115°F and 40°F. Cooling performance shall be rated in accordance with ARI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.

## Casing

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. Service panels shall have lifting handles and be removed and reinstalled by removing two fasteners while providing a water and air tight seal. All exposed vertical panels and top covers in the indoor air section shall be insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material. The base of the unit shall be insulated with 1/8 inch, foil-faced, closed-cell insulation. All insulation edges shall be either captured or sealed. The unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8 inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting, with forklift capabilities on three sides of the unit.

## Unit Top

The top cover shall be one piece construction or, where seams exist, it shall be double-hemmed and gasket-sealed. The ribbed top adds extra strength and enhances water removal from unit top.

## Filters

Throwaway filters shall be standard on all units. Optional 2-inch MERV 8 and MERV 13 filters shall also be available.

## Compressors

All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.

Dual compressors are outstanding for humidity control, light load cooling conditions and system back-up applications. Dual compressors are available on 7½-10 ton models and allow for efficient cooling utilizing 3-stages of compressor operation for all high efficiency models.

## Indoor Fan

The following units shall be equipped with a direct drive plenum fan design (T/YSC120F, T/YHC074F, T/YHC092F, T/YHC102F, 120F). Plenum fan design shall include a backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor. All plenum fan designs will have a variable speed adjustment potentiometer located in the control box.

3 to 5 ton units (high efficiency 3-phase with optional motor) are belt driven, FC centrifugal fans with adjustable motor sheaves. 3 to 5 ton units (standard and high efficiency 3-phase) have multispeed, direct drive motors. All 6 to 8½ ton units (standard efficiency) shall have belt drive motors with an adjustable idler-arm assembly for quick-adjustment to fan belts and motor sheaves. All motors shall be thermally protected. All 10 tons, 6 ton (074), 7½ to 8½ (high efficiency) units have variable speed direct drive motors. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).



## Outdoor Fans

The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor shall be permanently lubricated and shall have built-in thermal overload protection.

## Evaporator and Condenser Coils

Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Evaporator coils are standard for all 3 to 10 ton standard efficiency models. Microchannel condenser coils are standard for all 3 to 10 ton standard efficiency models and 4, 5, 6, 7.5, 8.5 ton high efficiency models. The microchannel type condenser coil is not offered on the 4 and 5 ton dehumidification model. Due to flat streamlined tubes with small ports, and metallurgical tube-to-fin bond, microchannel coil has better heat transfer performance. Microchannel condenser coil can reduce system refrigerant charge by up to 50% because of smaller internal volume, which leads to better compressor reliability. Compact all-aluminum microchannel coils also help to reduce the unit weight. These all aluminum coils are recyclable. Galvanic corrosion is also minimized due to all aluminum construction. Strong aluminum brazed structure provides better fin protection. In addition, flat streamlined tubes also make microchannel coils more dust resistant and easier to clean. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 600 psig. The assembled unit shall be leak tested to 465 psig. The condenser coil shall have a patent pending 1+1+1 hybrid coil designed with slight gaps for ease of cleaning. A plastic, dual-sloped, removable and reversible condensate drain pan with through-the-base condensate drain is standard.

## Controls

Unit shall be completely factory-wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device. A choice of microprocessor or electromechanical controls shall be available. Microprocessor controls provide for all 24V control functions. The resident control algorithms shall make all heating, cooling, and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection. 24-volt electromechanical control circuit shall include control transformer and contactor

## High Pressure Control

All units include High Pressure Cutout as standard.

## Phase monitor

Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitor is equipped with an LED that provides an ON or FAULT indicator. There are no field adjustments. The module will automatically reset from a fault condition.

## Refrigerant Circuits

Each refrigerant circuit offer thermal expansion valve as standard. Service pressure ports, and refrigerant line filter driers are factory-installed as standard. An area shall be provided for replacement suction line driers.



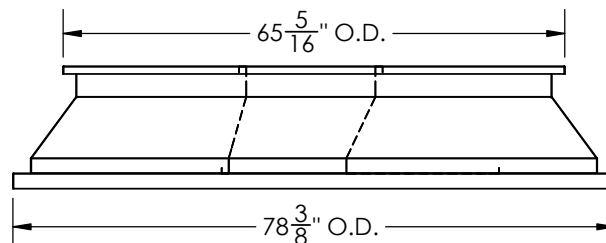
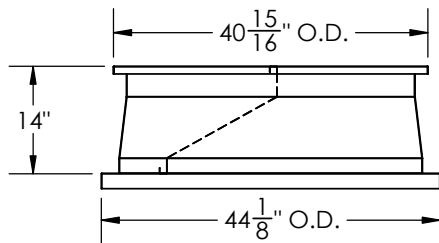
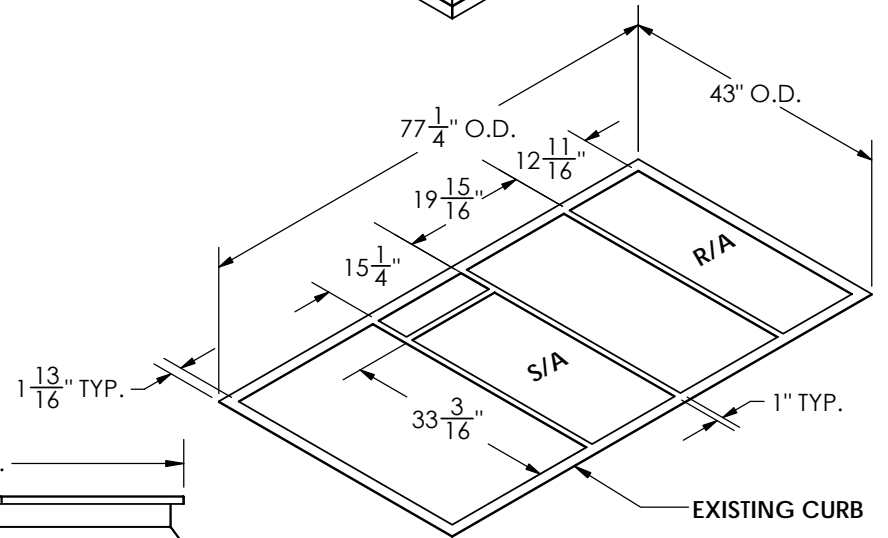
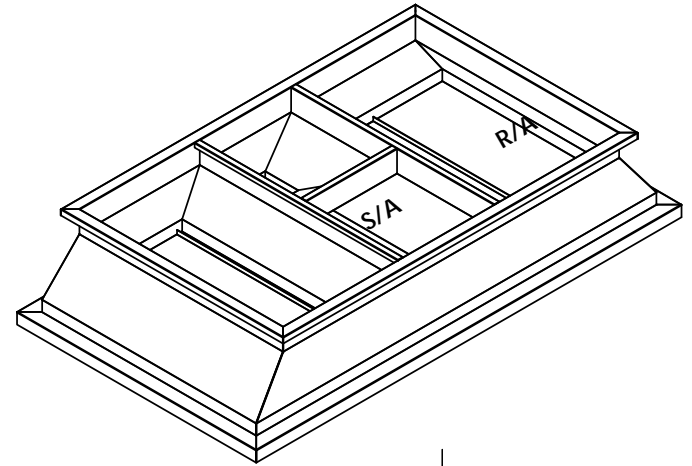
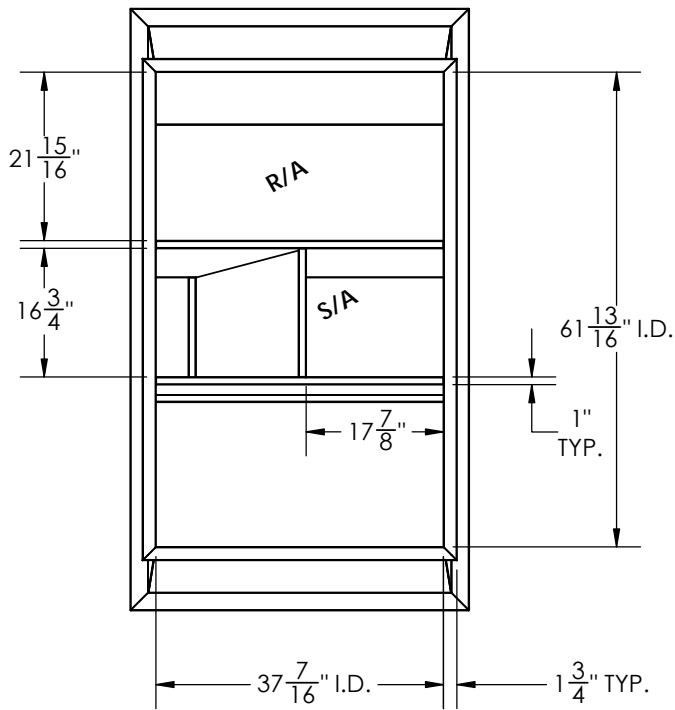
### **Gas Heating Section**

The heating section shall have a progressive tubular heat exchanger design using stainless steel burners and corrosion resistant steel throughout. An induced draft combustion blower shall be used to pull the combustion products through the firing tubes. The heater shall use a direct spark ignition (DSI) system. On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat/zone sensor. Units shall be suitable for use with natural gas or propane (field-installed kit) and also comply with the California requirement for low NOx emissions (Gas/Electric Only).

### **Economizer**

This accessory shall be available with or without barometric relief. The assembly includes fully modulating 0-100 percent motor and dampers, minimum position setting, preset linkage, wiring harness with plug, spring return actuator and fixed dry bulb control. The barometric relief shall provide a pressure operated damper that shall be gravity closing and shall prohibit entrance of outside air during the equipment off cycle. Optional solid state or differential enthalpy control shall be available for either factory or field installation. The economizer arrives in the shipping position and shall be moved to the operating position by the installing contractor.

WEIGHT: 176 LBS.



ISOMETRIC VIEW

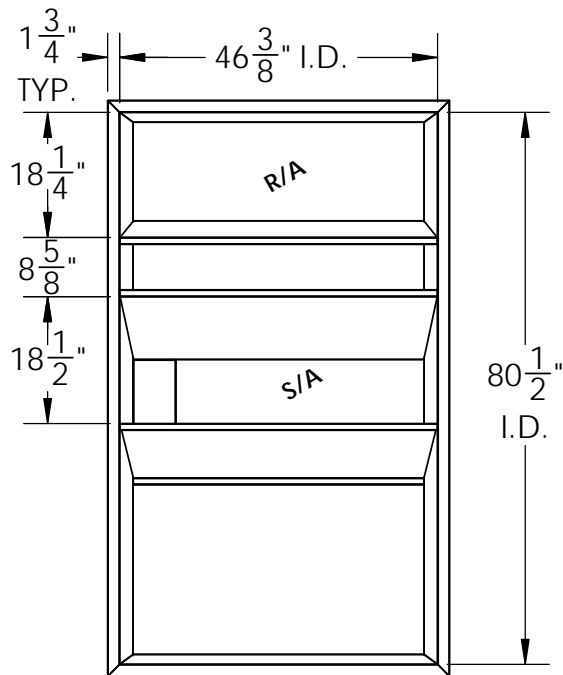
**NOTES:**

1. 16 GA. GALV. STEEL CONSTRUCTION
2. INTERNALLY INSULATED WITH 1"-1.5 PCF DENSITY INSULATION
3. CONTINUOUS WELDED SEAMS AND CORNERS
4. 1/4" X 1 1/4" GASKETING
5. SHIPPED FULLY ASSEMBLED
6. UNIT TO ADAPTER GASKET INCLUDED

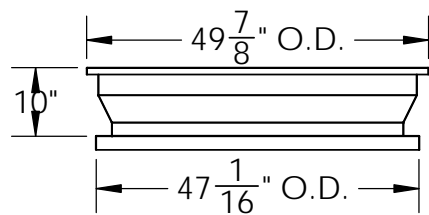
**INSTALLATION INSTRUCTIONS:**

- REMOVE OLD A/C UNIT.
- APPLY 1/4" X 1 1/4" GASKETING ON EXISTING CURB.
- INSTALL & SECURE ADAPTER CURB ON EXISTING CURB AS REQUIRED BY LOCAL BUILDING CODES.
- APPLY 1/4" X 1 1/4" GASKETING ON ADAPTER CURB.
- INSTALL & SECURE NEW A/C UNIT ON ADAPTER CURB AS REQUIRED BY LOCAL BUILDING CODE.

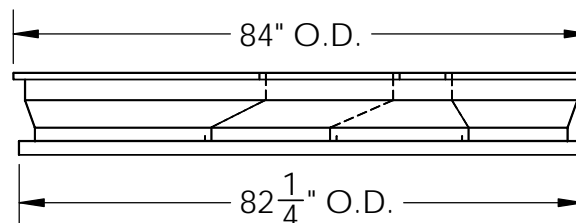
APPROVED			
DATE			
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS SHOWN ARE IN INCHES [MILLIMETERS] MILLIMETERS ARE REFERENCE ONLY	CHECK LIST	DATE	
	Drawn by: JNR	6/16/17	
UNLESS OTHERWISE SPECIFIED TOLERANCES ON LENGTH $\pm 1/16$ " ANGLE $\pm 2^\circ$			
THIRD ANGLE			
MATERIAL			
Galvanized Steel			
TC42ACTC80R1		DWG SIZE A	DWG NO:
		7/22/2017	ISS
SCALE 1:32	SHEET 1	OF 1	



**PLAN VIEW**

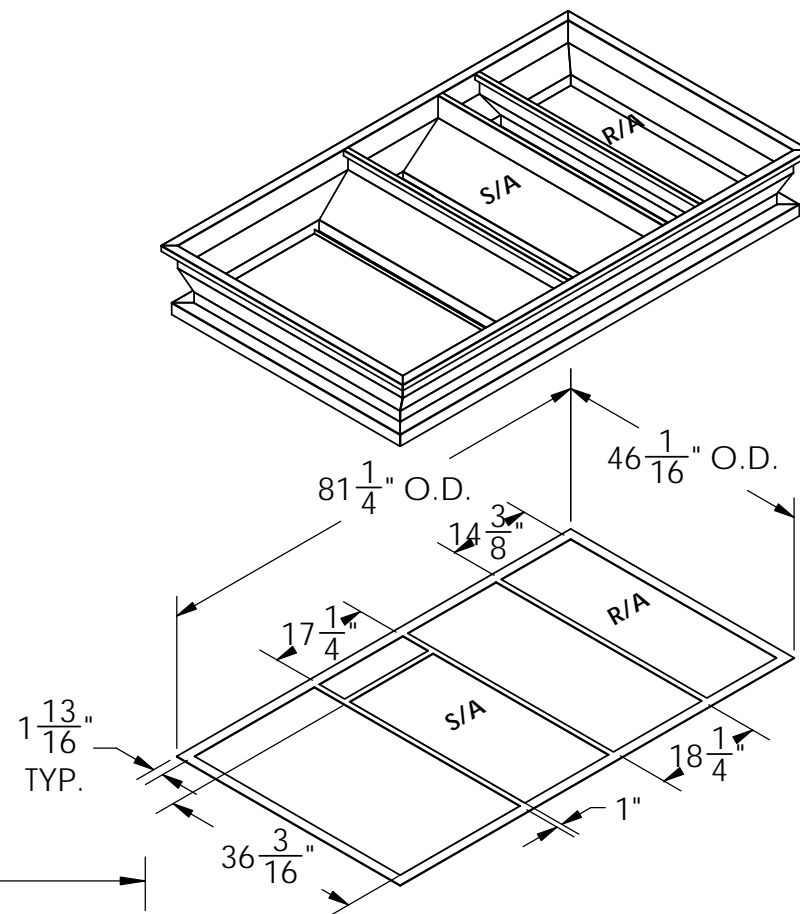


**FRONT VIEW**



**SIDE VIEW**

**WEIGHT: 155 LBS.**



**ISOMETRIC VIEW**

**NOTES:**

1. 16 GA. GALV. STEEL CONSTRUCTION
2. INTERNALLY INSULATED WITH 1"-1.5 LB DENSITY INSULATION
3. CONTINUOUS WELDED SEAMS AND CORNERS
4. 1/4" X 1 1/4" GASKETING
5. SHIPPED FULLY ASSEMBLED
6. UNIT TO ADAPTER GASKET INCLUDED

**INSTALLATION INSTRUCTIONS:**

- REMOVE OLD A/C UNIT.
- APPLY 1/4" X 1 1/4" GASKETING ON EXISTING CURB.
- INSTALL & SECURE ADAPTER CURB ON EXISTING CURB AS REQUIRED BY LOCAL BUILDING CODES.
- APPLY 1/4" X 1 1/4" GASKETING ON ADAPTER CURB.
- INSTALL & SECURE NEW A/C UNIT ON ADAPTER CURB AS REQUIRED BY LOCAL BUILDING CODE.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS SHOWN ARE IN INCHES (MILLIMETERS) MILLIMETERS ARE REFERENCE ONLY

UNLESS OTHERWISE SPECIFIED TOLERANCES ON LENGTH ANGLE THIRD ANGLE

±1/16" ±2°

CHECK LIST	DATE
Drawn by: <b>CMK</b>	10/12/16

<b>TC43ACTC90R3</b>		
DWG. NO. <b>A</b>	DATE <b>3/21/2017</b>	ISS
SCALE <b>1:24</b>	SHEET <b>1</b> OF <b>1</b>	



# Installation Instructions

## Barometric Relief Damper Packaged Rooftop Units

<b>Model Number:</b>	<b>Used With:</b>
BAYBARM010*	Precedent™ B or F Cabinet (digit30 = B/F) T/YSC060EDK, T/YZC036E*R, T/YHC036E*R, T/YHC037E*R, WSC060EDK, WSC060EDR, T/YSC036-060G*R, WSC036-048H, D/WHC036H
BAYBARM011*	Precedent™ C, D or E Cabinet (digit30 = C/D/E) T/YSC072-120F*R, T/YSC072-120EDK, T/YHC047-067E*R, T/YHC072-120E/F*R, T/YZC048-120E/F*R, WSC072-120E*R, WSC072-090BDK, T/YHC048-060F*R, WSC060H, D/WHC048-060H

### SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

May 2017

ACC-SVN52N-EN  
© 2017 Ingersoll Rand



1

## Warnings, Cautions, and Notices

Read this manual thoroughly before operating or servicing this unit. Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

### WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

### CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert

### NOTICE

Indicates a situation that could result in equipment or property-damage only accidents.

## Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs such as HCFCs and HFCs.

## Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

2

### WARNING

#### Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes.

### WARNING

#### Personal Protective Equipment Required!

Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards. Before installing/servicing this unit, technicians MUST put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. ALWAYS refer to appropriate MSDS sheets and OSHA guidelines for proper PPE. When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations. If there is a risk of arc or flash, technicians MUST put on all necessary Personal Protective Equipment (PPE) in accordance with NFPA70E for arc/flash protection PRIOR to servicing the unit. Failure to follow recommendations could result in death or serious injury.

### WARNING

#### Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- All Ingersoll Rand personnel must follow Ingersoll Rand Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. All policies can be found on the BOS site. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Ingersoll Rand personnel should always follow local regulations.

## Model Number Description

All products are identified by a multiple-character model number that precisely identifies a particular type of unit. Its use will enable the owner/operator, installing contractors, and service engineers to define the operation, specific components, and other options for any specific unit. When ordering replacement parts or requesting service, be sure to refer to the specific model number and serial number printed on the unit nameplate.

3

## Parts List

- 1 - Barometric Relief Hood
- 1 - Duct Cover with Barometric Relief Cutout
- 1 - Barometric Relief Blade
- 1 - Mist Eliminator
- 1 - Rain Shield
- (8)<sup>1</sup> or (9)<sup>2</sup> - Screws (B or F Cabinet, digit 30=B/F)
- (10)<sup>1</sup> or (11)<sup>2</sup> - Screws (C, D or E Cabinet, digit 30=C/D/E)

## Unpacking/Assembling Damper Shipped with Unit

**Note:** This instruction covers installation of BAYBARM010\* and BAYBARM011\*.

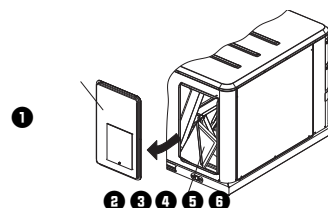
### WARNING

#### Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

- See Figure 1 through Figure 7.
- Remove 1 and pull off the clear film covering it.
- Remove the packaged assembly of 2, 3, 4, 5, and 6.

Figure 1. Accessing components in storage location

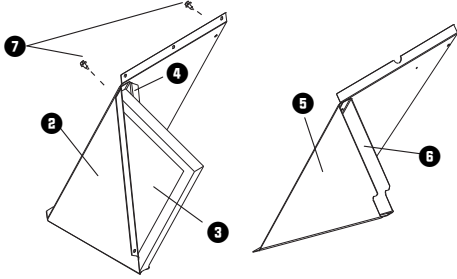


- Barometric Relief Damper shipped with unit.
- Barometric Relief Damper accessory kit

4

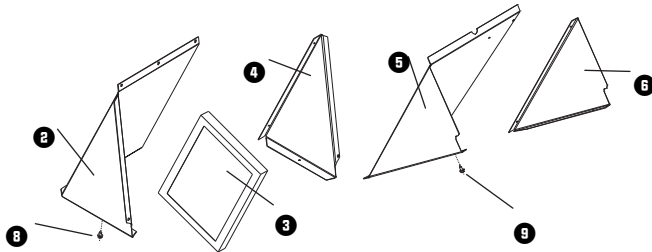
4. Remove the two screws 7 that hold 2, 3, and 4 to 5 and 6.

Figure 2. Removing the two screws



5. Remove the screw 8 holding 2, 3, and 4 together.  
6. Remove the screw 9 holding 5 and 6 together.

Figure 3. Remove individual screws



7. Attach 2 to 4, and 5 to 6. The results are the assembled rain shield 10 and internal hood 1 1 shown in Figure 4.  
• Use two screws for (T/W/YSC033-063, T/YHC037E except WSC060H, D/WHC048-060H units).

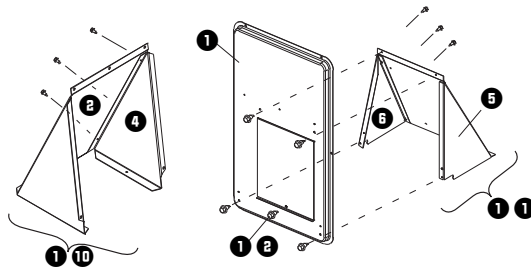
5

• Use three screws for (T/YHC047-067E, T/YHC048-060F, WSC060H, D/WHC048-060H, T/W/Y072-120 units).

8. Remove screw 1 2.

9. Attach 1 1 to 1 as shown.

Figure 4. Rain shield/Internal hood



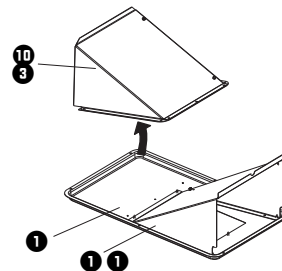
### Unpacking/Assembling Damper Shipped Separately

**Note:** This instruction covers installation of BAYBARM010\* and BAYBARM011\*.

See Figure 5 and Figure 6.

1. Separate 10 (and 3) from the assembly of 1 and 1 1.

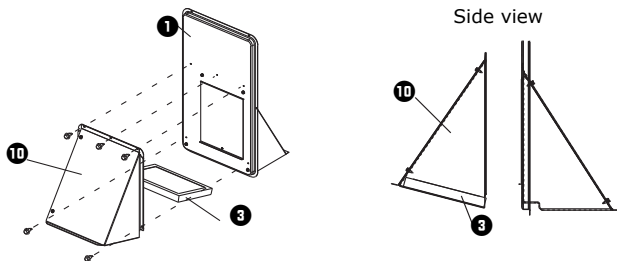
Figure 5. Damper assembly



6

2. Insert 3 in to 10 and make sure that 3 is properly seated.  
3. Attach 10 to 1 as shown.

Figure 6. Side view of damper assembly



### Install Damper Into Unit

#### ⚠ WARNING

#### Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

**Important:** If there is an economizer:

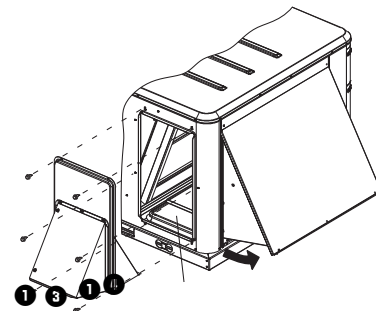
- There may be a duct blockoff plate already installed or ready to be installed in the opening 1 3. The blockoff plate must be removed if a barometric relief damper is used. Remove it or do not install it.
- Make sure the economizer is in the open position 1 4 before installing the barometric relief damper.

7

See Figure 7.

1. If necessary, remove the existing duct cover from the unit.  
2. Attach the assembly to the unit using six screws.

Figure 7. Duct blockoff plate



**IR** Ingersoll Rand.

Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a global business committed to a world of sustainable progress and enduring results.

Club Car

IR Ingersoll Rand.

THERMO KING

TRANE

ingersollrand.com

Ingersoll Rand has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

ACC-SVN52N-EN 26 May 2017  
Supersedes ACC-SVN52M-EN (Oct 2016)

©2017 Ingersoll Rand

# Installation Instructions

## Economizer Packaged Rooftop Units

<b>Model Number:</b>	<b>Used With:</b>
BAYECON085*	Precedent™ B/F Cabinet with ReliaTel™ Controls- T/YSC036-060E*R, WSC060EDR, T/YHC036E*R, T/YHC037E*R, T/YZC036E, T/YSC036-060G*R, WSC036-048H, D/WHC036H
BAYECON086*	Precedent™ B/F Cabinet with Electromechanical Controls- T/YHC036E*E, T/YSC036-060E*E, T/YSC036-060G*E
BAYECON087*	Precedent™ C/D/E Cabinet with ReliaTel™ Controls- T/YHC047E-067E*R, T/YHC048-60E*R, T/YHC072-102F*R, T/YHC120E*R, T/YSC(072-120)F*R, WSC072-120E*R, T/YHC048-060F*R, WSC060H, D/WHC048-060H, T/YZC048-120
BAYECON088*	Precedent™ C/D/E Cabinet with Electromechanical Controls- T/YHC048E-120E*E, T/YSC(072-120)F*E, T/YHC(048-060)F*E, T/YHC092F*E, T/YHC074F(3/4)E

### SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

May 2017

ACC-SVN44-LEN  
© 2017 Ingersoll Rand



## 1 Warnings, Cautions, and Notices

Read this manual thoroughly before operating or servicing this unit. Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

- WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- CAUTION** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe equipment or property-damage only accidents.
- NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

### Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs such as HCFCs and HFCs.

### Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

## 2 WARNING

**Proper Field Wiring and Grounding Required!**  
Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes.

## WARNING

**Personal Protective Equipment Required!**  
Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards. Before installing/servicing this unit, technicians MUST put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. ALWAYS refer to appropriate MSDS sheets and OSHA guidelines for proper PPE. When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations. If there is a risk of arc or flash, technicians MUST put on all necessary Personal Protective Equipment (PPE) in accordance with NFPA70E for arc/flash protection PRIOR to servicing the unit. Failure to follow recommendations could result in death or serious injury.

## WARNING

**Follow EHS Policies!**  
Failure to follow instructions below could result in death or serious injury.  
• All Ingersoll Rand personnel must follow Ingersoll Rand Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. All policies can be found on the BOS site. Where local regulations are more stringent than these policies, those regulations supersede these policies.  
• Non-Ingersoll Rand personnel should always follow local regulations.

## 3 Parts list

- 1 - Economizer Assembly
- 1 - Mist Eliminator
- 1 - Tie, Wire
- 10 - Screws
- 1 - Sensor, Thermistor (18 19 20)
- 1 - Grommet (22)
- 1 - Duct Blockoff Plate (15)
- 12 - Screws
- 1 - Bottom Blockoff (21)

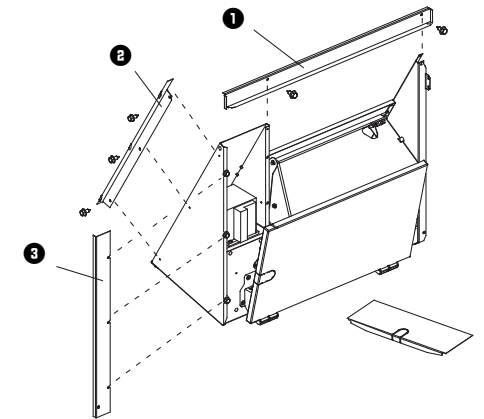
### Field Installed Assembly and Installation

This section covers installation of economizer units that were not installed in the rooftop unit at the factory.

#### Unpack Economizer

See Figure 1.  
Remove 1, 2, and 3.  
• Remove the screws completely from 1 and 2. Retain them for reassembly.  
• Do not remove the screws completely from 3.

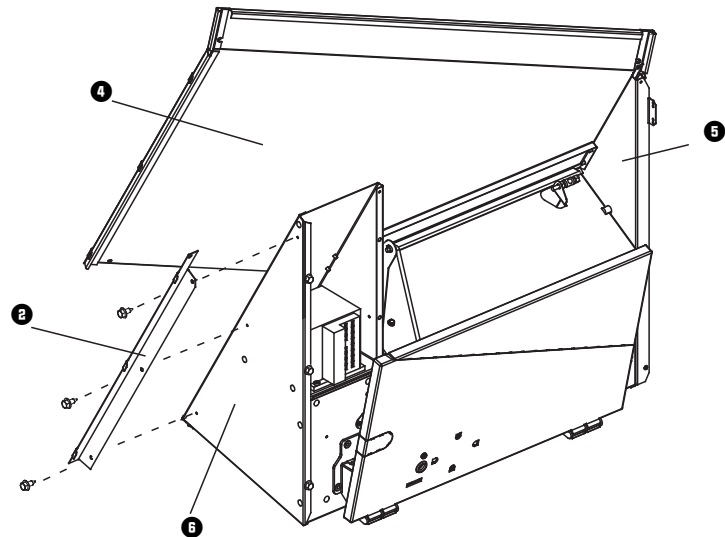
Figure 1. Unpacking the economizer



## 4 Assemble End Panel

- See Figure 2.
1. Align three slots in 4 with three tabs on 5.
  2. Pivot 4 into place.
  3. Align three tabs on 2 with three slots in 4.
  4. Pivot 2 into place.
  5. Secure 2 with three screws into 5.

Figure 2. Assembling the end panel



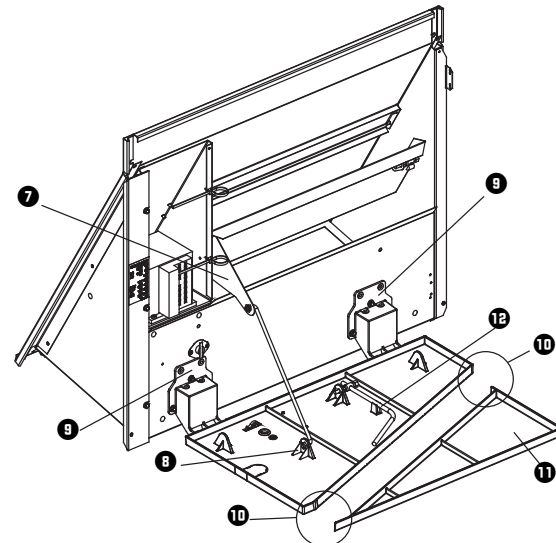
### Reconfigure the Damper (for Horizontal Installation only)

The economizer damper is pre-configured at the factory for down flow applications. You must reconfigure the damper for horizontal applications. See Figure 3 for disassembly.

1. Remove two screws from 7.
2. Remove nut and disassemble 8.

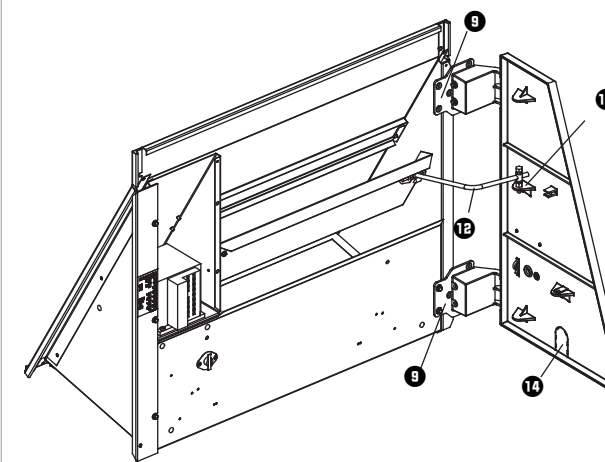
3. Remove six screws from 9 (three in each location).
4. Make two cuts at 10.
5. Detach and discard 11.

Figure 3. Disassembling the damper



- See Figure 4 for reassembly.
1. Attach two screws at each location 9.
  2. Connect 12. Do not allow more than 0.25 in. (6.25 mm) of rod to protrude through the ball joint at 13.
  3. If the unit has a smoke detector, remove knockout 14.

## 6 Figure 4. Reassembling the damper



### Install Optional Sensors (ReliaTel™ Only)

If the optional sensors for humidity and temperature monitoring are to be used (BAYENTH005\* and BAYENTH006\*), install them now using the instructions provided in the kits.

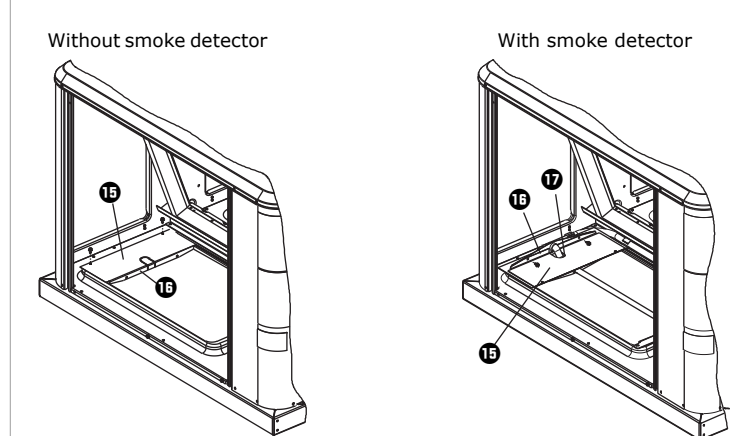
### Install Duct Blockoff Plate (Downflow Units only)

**Important:** If power exhaust or barometric relief accessory kits are installed along with an economizer, do not install the duct blockoff plate.

The duct blockoff plate is only installed on down flow units in a C, D or E cabinet (digit 30 = C/D/E). See Figure 5.

- For units without a smoke detector, install 15 with flange 16 pointing down.
- For units with a smoke detector, remove knockout 17, and then install 15 with flange 16 pointing up.

## 7 Figure 5. Installing the duct blockoff plate

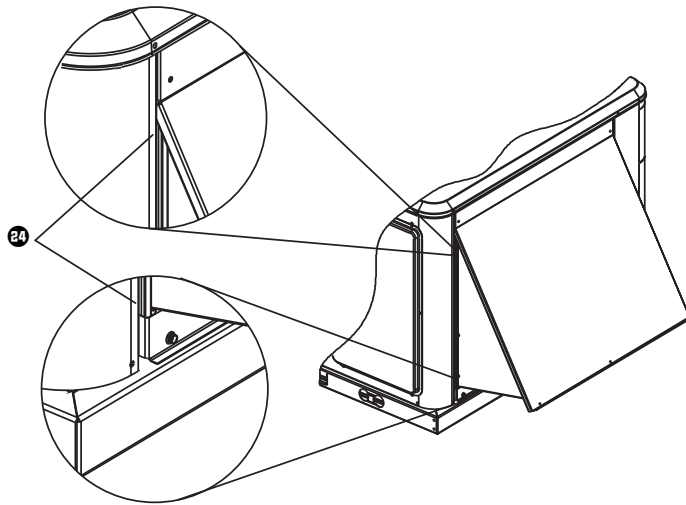


### Install Economizer into the Rooftop Unit

- See Figure 1, Figure 6, and Figure 10.
1. Lift the assembled economizer unit into position.
  2. Fit the upper left hand corner around the channel in the cabinet post.
  3. Pivot the economizer into the opening in the cabinet.
  4. Lift the economizer and panel assembly to align the upper screw holes.
  5. Secure the top left and top right with screws.
  6. Pull out on the bottom of the economizer and secure it with the bottom three screws 23.
  7. Remove the filter access panel.
  8. Position 24 inside the filter section. 24 will slip over the three screws.
  9. Align the holes in the plate with the holes in the panel.
  10. Secure the bottom right with a screw 22.
  11. Install the bottom blockoff 21 and secure it with three screws 23.
  12. Using field supplied silicone, apply sealant around economizer hood 24.

8

Figure 6. Sealing the seams



### Install Mixed Air Sensor

See Figure 7 and Figure 8.

1. Install 1B through 24 (if applicable) and secure it with 1B.
2. Connect 20 to existing jumper connections located in the indoor fan section.

9

Figure 7. Mixed air sensor for units with FC fan (All units except Y/TSC120F(3/4/W), Y/THC092-120E, Y/THC074-120F, Y/TZC072-120, WSC120E(3/4/W))

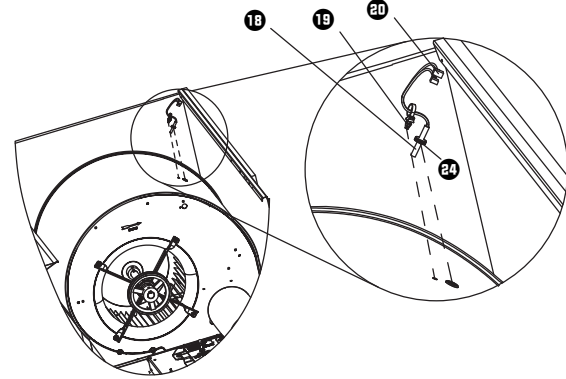
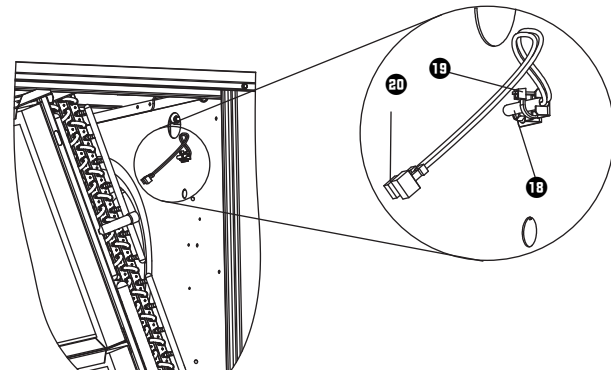


Figure 8. Mixed Air Sensor for units with Plenum fan Y/TSC120F(3/4/W), Y/THC092-120E, Y/THC074-120F, Y/TZC072-120, WSC120E(3/4/W)



10

### Wiring Connections ReliaTel™ Units

Locate unit wiring harness plug P7 and insert into J7 on the actuator motor.

**Note:** If options module (RTOM) is not installed then connect plug 3P4 to 3J4 on the refrigeration module (RTRM) in the control box.

### Electromechanical Units

Insert wiring harness plug PPM2A into the actuator motor wiring harness, and then replace the access panels.

### Factory Installed Economizer Set-Up

This section covers setup of economizer units that have been installed in the rooftop unit at the factory.

### Downflow Configuration

#### ⚠ WARNING

#### Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

See Figure 6, Figure 9, and Figure 10.

1. Remove filter access panel.
2. Remove the screw that holds it in place, and then remove bottom blockoff 21 from its shipping location.
3. Remove the bottom three screws from the economizer panel 22.
4. Pull the economizer assembly out into operating position.
5. Secure the economizer assembly with two screws 23 at the bottom of the corner posts.
6. Install 24 and secure with three screws 25.
7. Using field supplied silicone, apply sealant around economizer hood 24.

11

Figure 9. Removing the bottom blockoff

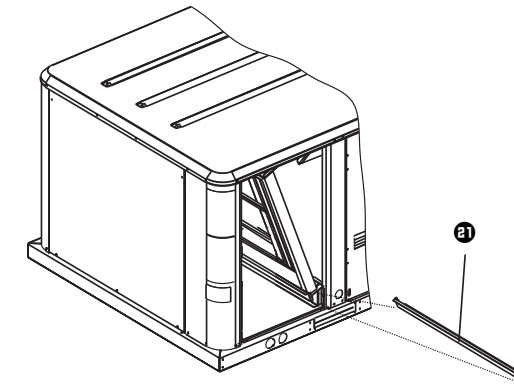
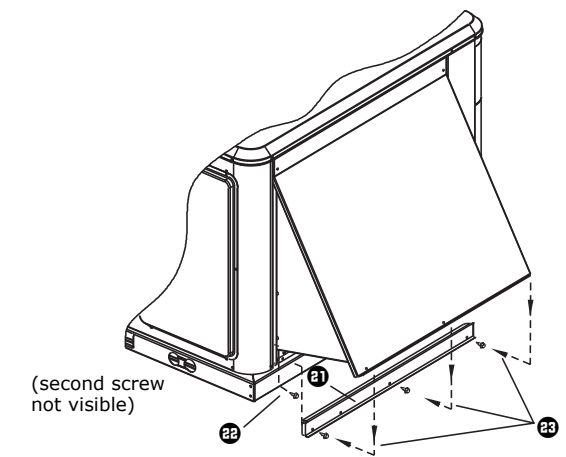


Figure 10. Fastening the economizer and bottom blockoff



12

### Horizontal Configuration

#### ⚠ WARNING

#### Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.

The economizer must be removed from the rooftop unit and reconfigured for horizontal operation.

1. Remove filter access panel.
2. Remove 2, shown in Figure 1. (Leave the screws loosely in place.)
3. Remove the bottom three screws and top two screws from the economizer panel.
4. Remove 1B, shown in Figure 5.
5. Pull the economizer assembly and end panel out of the unit.
6. Reconfigure the damper for horizontal operation. See "Reconfigure the Damper (for Horizontal Installation only)" for instructions, and then return to this procedure.
7. ReliaTel™ units only: If optional sensors for humidity and temperature monitoring are to be used (BAYENTH005\* and BAYENTH006\*), install them now. Use the instructions provided in the kits.
8. Remove supply and return duct covers from the horizontal openings and install over the downflow opening.
9. Reinstall the economizer. See "Install Economizer into the Rooftop Unit" for instructions.

### Minimum Position Setting for 1 Speed Indoor Fan

1. Apply power to the unit.
2. Place the zone sensor fan selector in the fan "ON" position and the heat/cool selector in the "OFF" position to place the damper in the minimum ventilation position.
3. Turn the Min Pos potentiometer (on the roof top economizer module [RTEM]) clockwise to open or counterclockwise to close. The damper will open to this setting each time the blower circuit is energized. When adjusting minimum position, the damper may move to the new setting in several small steps.
4. Wait at least 15 seconds for the damper to settle at the new position.
5. Replace the filter access panel. The damper will close when the blower circuit is de-energized.

13

### Minimum Position Setting for 7.5-10 ton and 17 Plus with Multi-Speed, Single Zone VAV or Variable Speed with eFlex™ and eDrive™ with Single Zone VAV

1. Apply power to the unit
2. Using the service test guide on unit access panel, momentarily jump across the Test 1 & Test 2 terminals on LTB1 one time to start indoor fan.
3. Turn the MIN POS - DCV potentiometer on the RTEM clockwise to open or counter-clockwise to close. The damper will open to this setting for low speed fan operation. When adjusting minimum position, the damper may move to the new setting in several small steps. Wait at least 15 seconds for the damper to settle at the new position. Range of damper for this setting is 0-100%.
4. Momentarily jump across the Test 1 & Test 2 terminals on LTB1, to cycle through test modes to Cool 1.
5. Turn the DCV SETPOINT - LL potentiometer on the RTEM clockwise to open or counter-clockwise to close. This will set the minimum damper position at an intermediate point of fan operation. Range of damper for this setting is 0-100%.
6. Momentarily jump across the Test 1 & Test 2 terminals on LTB1, to cycle through test modes to Cool 2.
7. Turn the MIN POS - DESIGN potentiometer on the RTEM clockwise to open or counter-clockwise to close. This will set the minimum damper position at maximum fan speed. Range of damper for this setting is 0-50%.
8. The economizer minimum damper position for all fan speeds is complete. The RTEM will control minimum damper position along an imaginary line between the 3 damper minimum positions based on fan speed.

**Note:** The RTEM will limit intermediate minimum damper position to ensure proper ventilation based upon the low fan speed minimum damper position set in Step 3.

9. Replace the filter access panel. The damper will close when the blower circuit is de-energized.

### Dry Bulb Settings

Standard economizer dry bulb changeover is field selectable to four outdoor temperatures. See the following table for potentiometer settings. The selection is made on the RTEM.

### Reference Enthalpy Settings

Economizer enthalpy changeover is field selectable to 4 points. See the following table for potentiometer settings. The selection is made on the RTEM.

14

Table 1. Potentiometer settings

Potentiometer Setting	Dry Bulb	Enthalpy
A	73°F (22.8°C)	27 Btu/lb (63 kJ/kg)
B	70°F (21.1°C)	25 Btu/lb (58 kJ/kg)
C	67°F <sup>(a)</sup> (19.4°C)	23 Btu/lb (53 kJ/kg)
D	63°F (17.2°C)	22 Btu/lb (51 kJ/kg)
E	55°F (12.8°C)	19 Btu/lb (44 kJ/kg)

(a) Factory setting

Table 2. Economizer option controls

Control Option	Enable Conditions <sup>(a)</sup>	Optional Sensors Required <sup>(b)</sup>
Dry Bulb (standard)	See Table 1	None
Reference Enthalpy (ReliaTel™ Only)	See Table 1	Outdoor Humidity (BAYENTH005*)
Comparative Enthalpy (ReliaTel™ Only)	Outdoor Air Enthalpy 3.0 BTU/lb. less than Return Air Enthalpy	Outdoor Humidity Return Humidity Return Temperature (BAYENTH006*)

(a) Economizing is enabled when these conditions are met.

(b) Conditions level will be self configured when optional sensors are connected.



Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a global business committed to a world of sustainable progress and enduring results.



ingersollrand.com

Ingersoll Rand has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

ACC-SVN44LEN 26 May 2017  
Supersedes ACC-SVN44K-EN (Oct 2016)

©2017 Ingersoll Rand

