



Daikin
VRV
Commissioning Guide

Participant Guide

Preface



- This handbook is intended for use as an aid to Field Service Technicians with general technical knowledge and training on VRV equipment. If the Field Service Technician does not have any (or limited) technical knowledge and training on VRV or VRF equipment, do not attempt to install, commission or service any Daikin VRV product with this handbook. Instead, the Field Service Technician needs to complete training offered by Daikin AC (Americas), Inc. ("Daikin AC") before attempting any installation, commissioning or service of the VRV product.
- This reference handbook is available for Field Service Technicians as a simplistic reference guide for commissioning. It is not intended to be a substitute for the VRV Installation and Service Manuals or for training offered by Daikin AC.
- We assume the Field Service Technicians using this handbook are fully qualified to work on the VRV equipment.
- This handbook is intended as a demonstrative aid only. It is not intended as a substitute for training offered by Daikin AC. Anyone installing VRV equipment should first review the unit and inspect and evaluate the location where the unit is to be installed. Every installation varies in its individual circumstances and the Field Service Technician will have to use their professional judgment in each installation.
- Should you require further assistance contact our Technical Service Department.
- Every effort has been made to insure that the information and graphics included in this Commissioning Guide is as accurate as possible at the time of publication. DaikinAC Training Department shall not be held liable for any changes in procedures, specifications, or any system component information which are different from what is represented in this Guide.

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Dr. Daikin

*Diagnostic
Tool*



Fault Code Identification

Three ways to help with ERROR CODES:

WEB: www.drdaikin.com

MOBILE WEB: <http://mobile.drdaikin.com>

SMS TEXT: **Error** plus **(code)**

- send to 32075 -

Example: Error U4

***VRV[®] III* System Components**

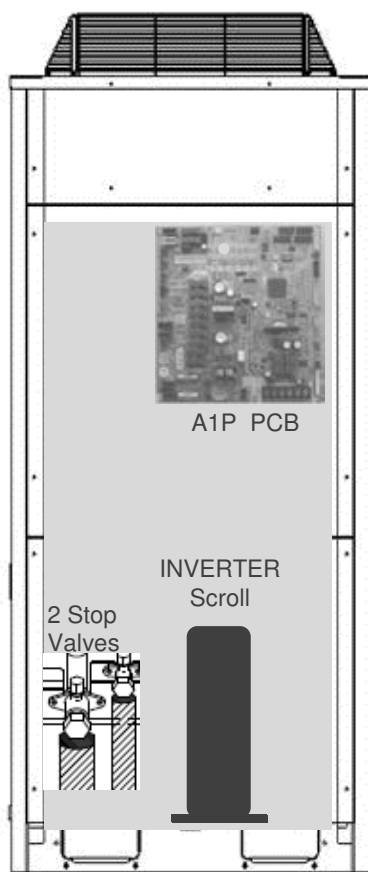
Condensers – Fan Coils – Branch Selector Boxes- Local Remote Controllers



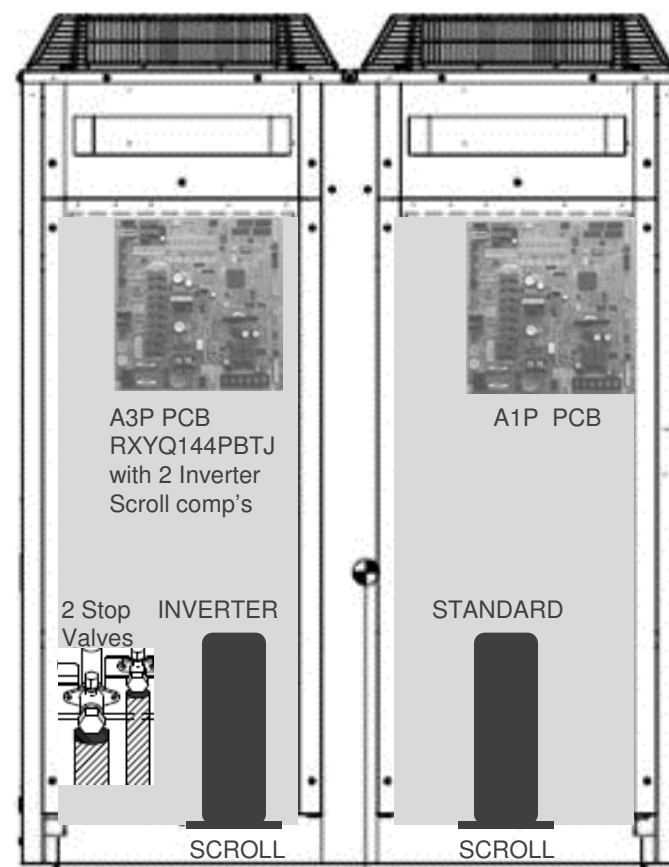
Heat Pump Condenser Styles



Base Single Modules



RXYQ72PB



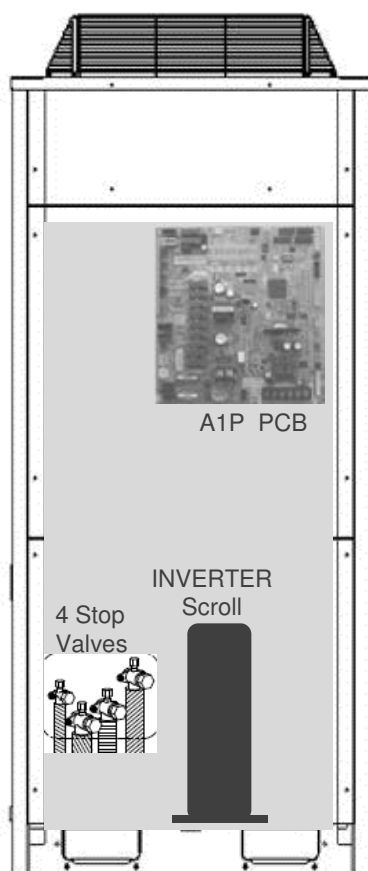
***RXYQ96,120,144PB**

***NOTE: RXYQ144PBTJ (208/230vac.) Utilizes 2 Inverter Scroll Compressors – Dual Fan & 3 stop valves**

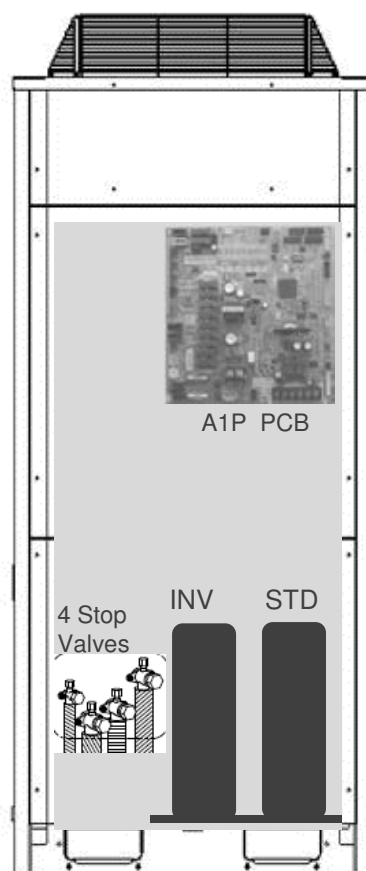
Heat Recovery Condenser Styles



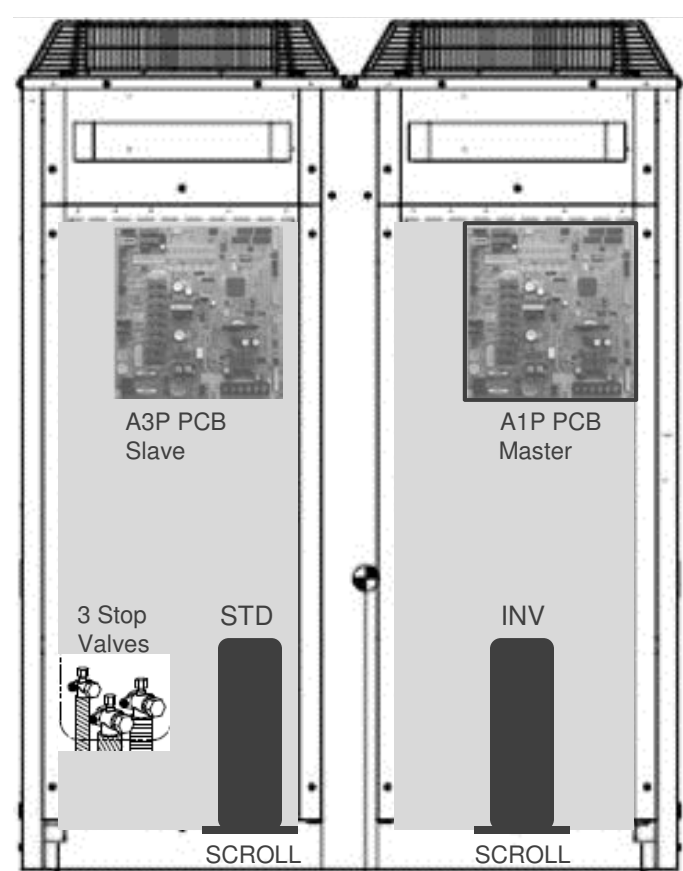
Single & Manifolded Modules



REMQ72PB



REMQ96/120PB



REYQ72,96,120,144PB

Heat Pump Systems



RXYQ_PBTJ (208/230vac 3Ph)

Single Module



6 Ton

8,10,12 Ton

Double Module



14 & 16 Ton



18 & 20 Ton

Triple Module



22,24,26 Ton

Triple Module



28 & 30 Ton

Heat Pump Systems



RXYQ_PBYD (460vac 3Ph)

Single Module



6 Ton

8 & 10 Ton



12 Ton

Double Module



14 & 16 Ton



18 & 20 Ton

Triple Module



22,24,26 Ton



28 & 30 Ton

Heat Recovery Systems



REYQ/REMQ_PBTJ (208/230vac 3Ph)

Single Module



6,8,10,12 Ton

Double Module



14,16,18,20 Ton

Triple Module



22,24,26,28 Ton

Heat Recovery Systems



REYQ/REMQ_PBYD (460vac 3Ph)

Single Module



6,8,10,12 Ton

Double Module



12,14,16,18,20 Ton

Triple Module

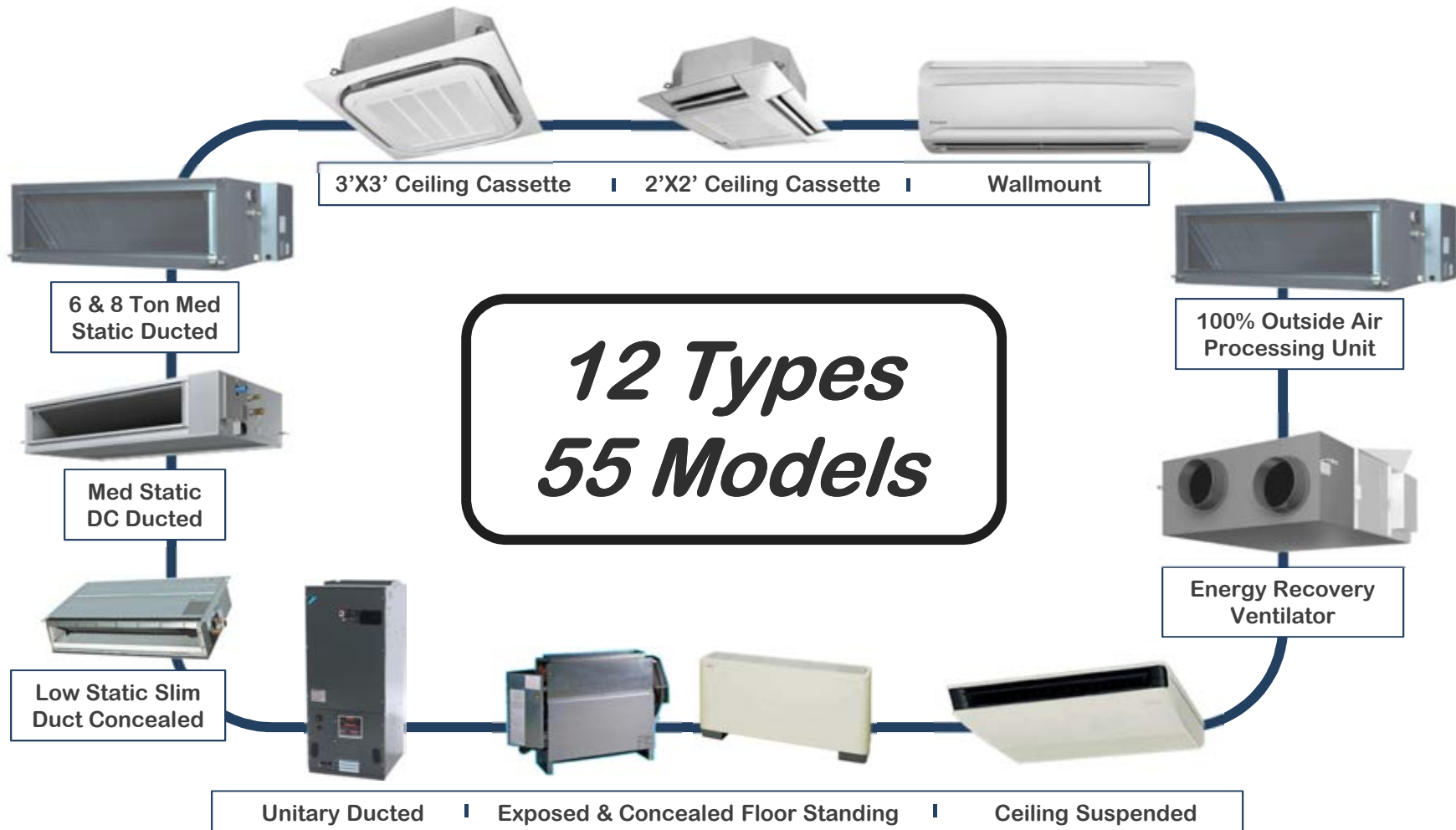


22,24,26,28 Ton

Indoor Units



VRV/III Models & Appearance – 208/230vac 1 Ph Indoor Units



Branch Selector Boxes



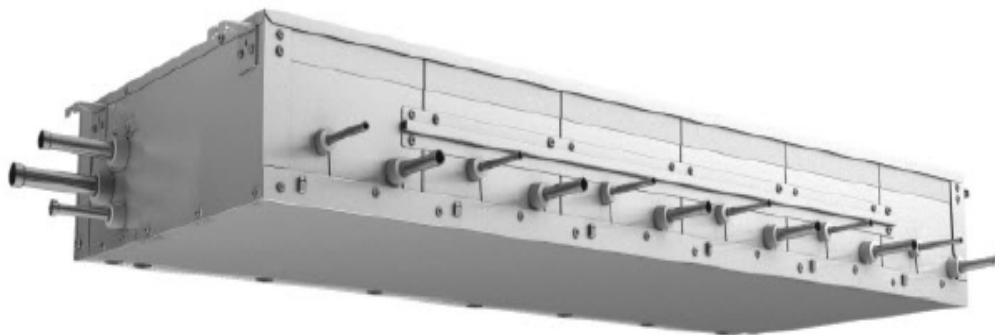
VRV^{III} Models & Appearance – 208/230vac 1 Ph Branch Selector Boxes



BSVQ36PVJU 36,000 Btu
BSVQ60PVJU 60,000 Btu
BSVQ96PVJU 96,000 Btu



BSV4Q36PVJU 4 - Port

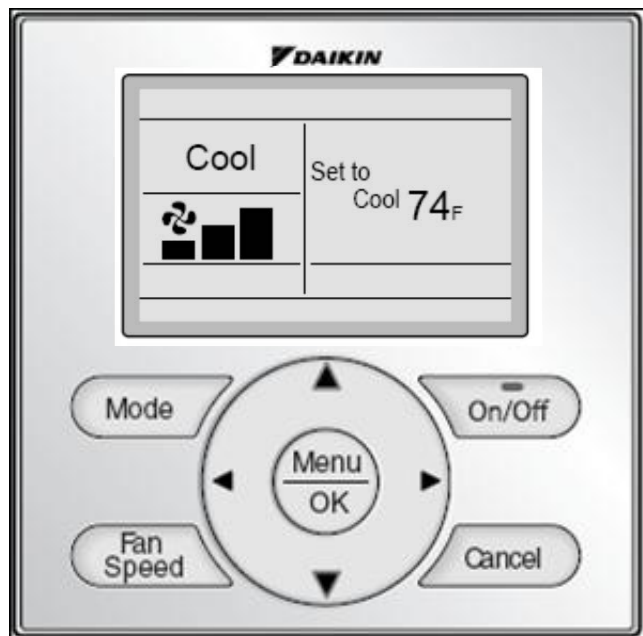


BSV6Q36PVJU 6 - Port

Local Remote Controllers



BRC1E72



Navigation Remote Controller

BRC2A71



**Simplified
Remote
Controller**



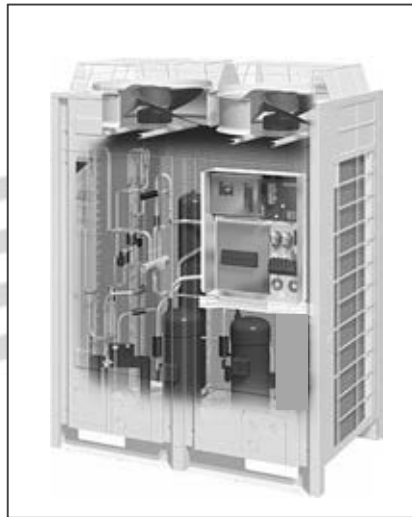
BRC7C/7E/4C



**Hand-held
Wireless
Remote
Controller**

Condenser - Unit Layout

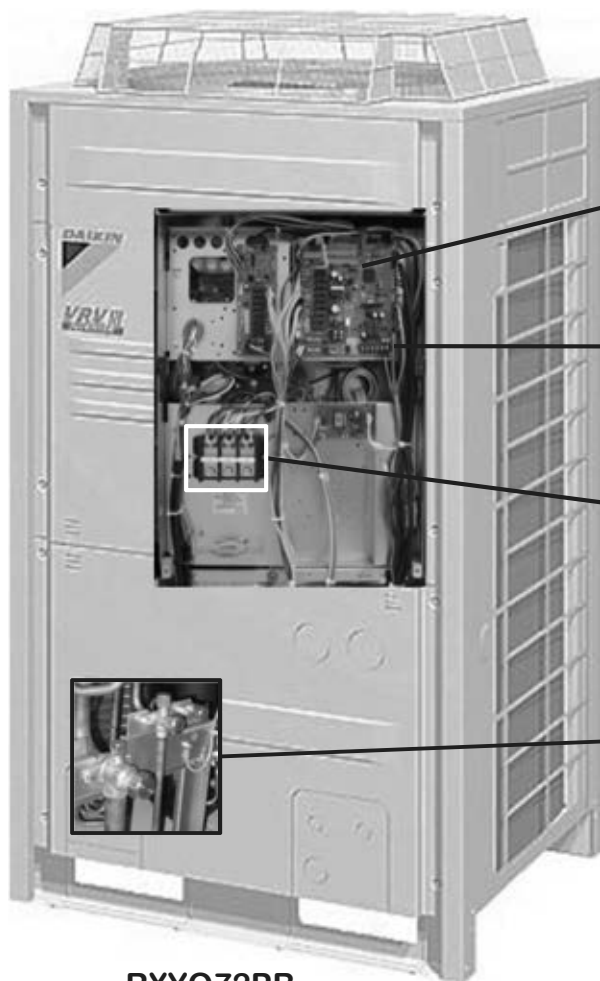
Line & Control Voltage – Stop Valves – Auto Charge Port – Control PCB



VRV/// Heat Pump – RXYQ



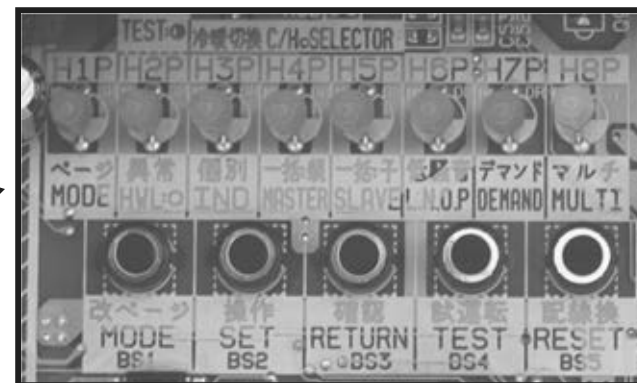
Single & Manifolded



RXYQ72PB

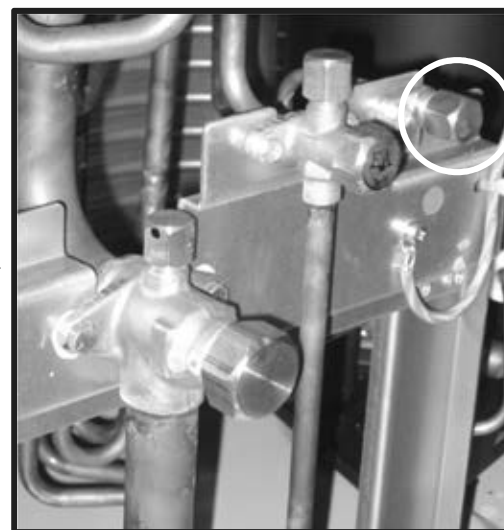
Control Voltage Connections

Line Voltage Connections



Control PCB (A1P)

2 Stop Valves



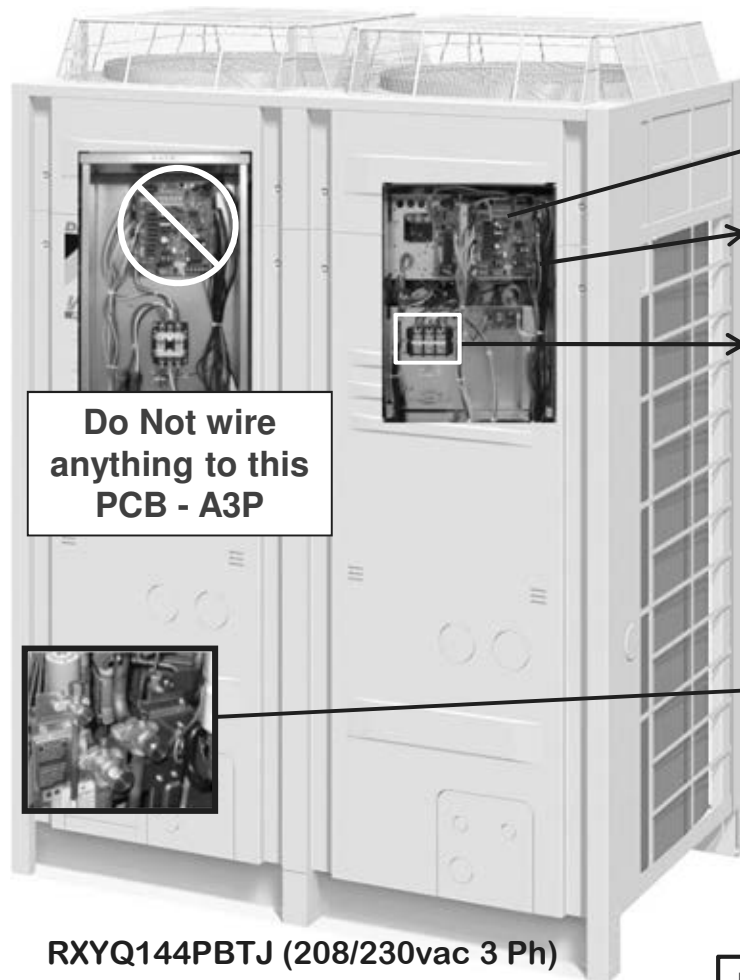
Auto Charge Port

HP/LP Gas Liquid

VRV^{III} Heat Pump – RXYQ144PBTJ

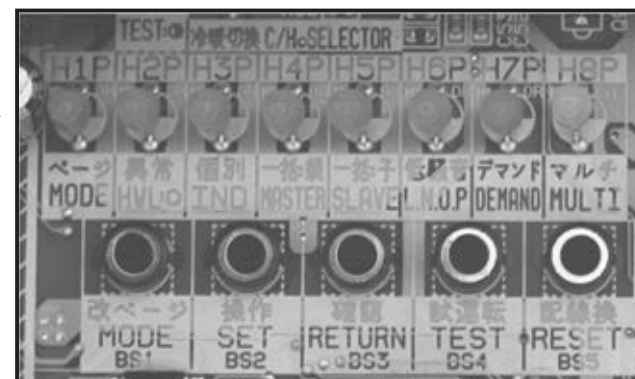


Single Piped



Control Voltage Connections

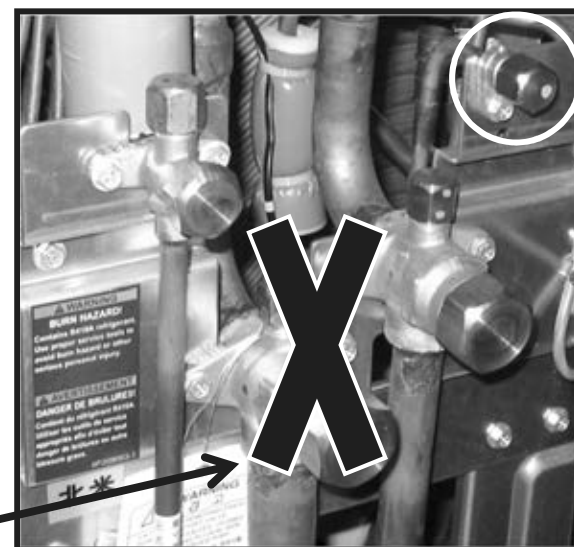
Line Voltage Connections



Control PCB (A1P)

3 Stop Valves

Auto Charge Port



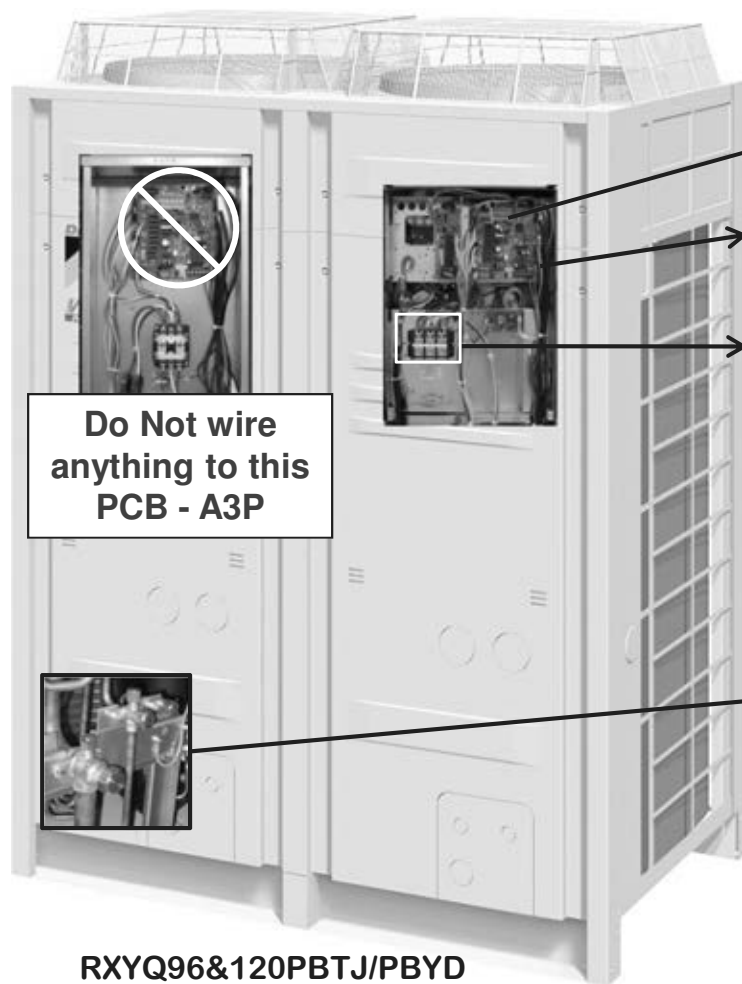
Not Used on this model

NOTE: This model cannot be manifolded

VRV^{III} Heat Pump – RXYQ



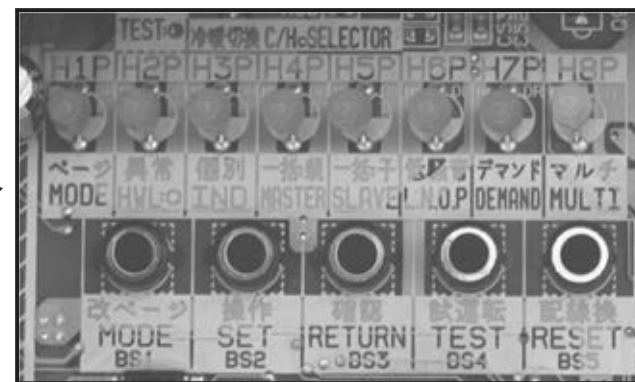
Single & Manifolded



Control Voltage Connections

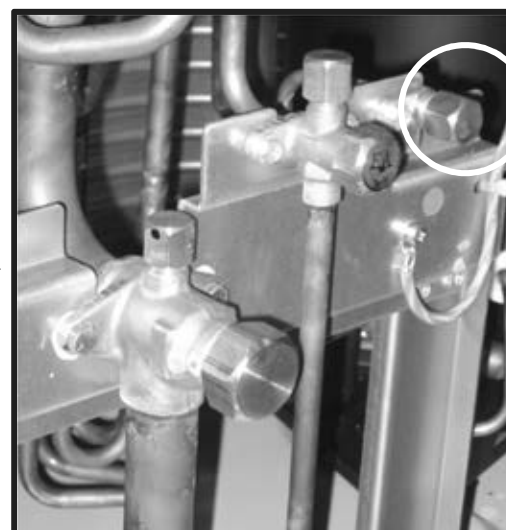
Line Voltage Connections

Do Not wire anything to this PCB - A3P



Control PCB (A1P)

2 Stop Valves



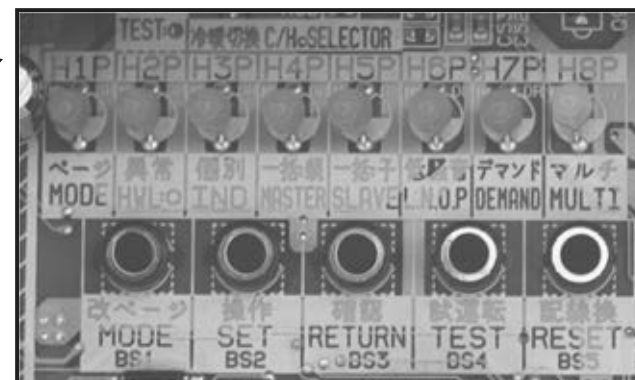
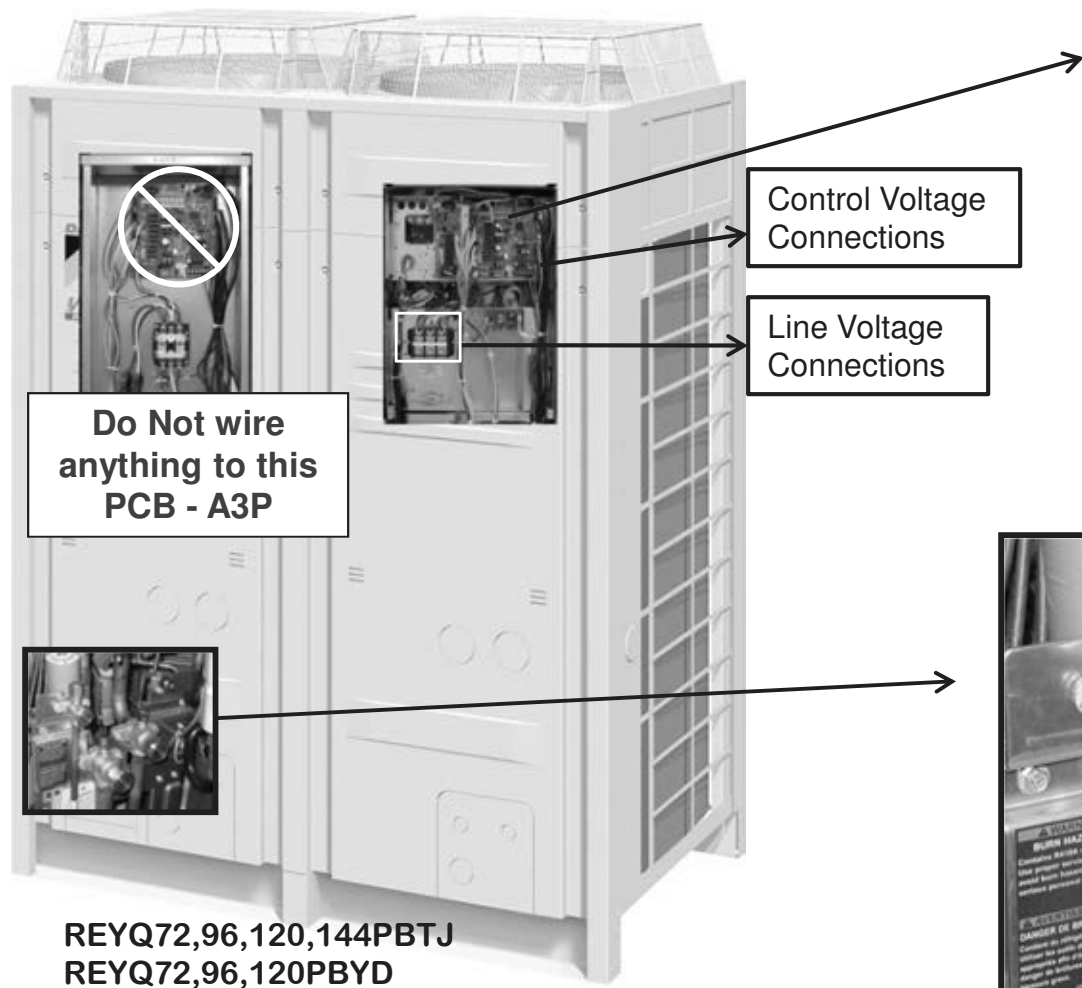
HP/LP Gas Liquid

Auto Charge Port

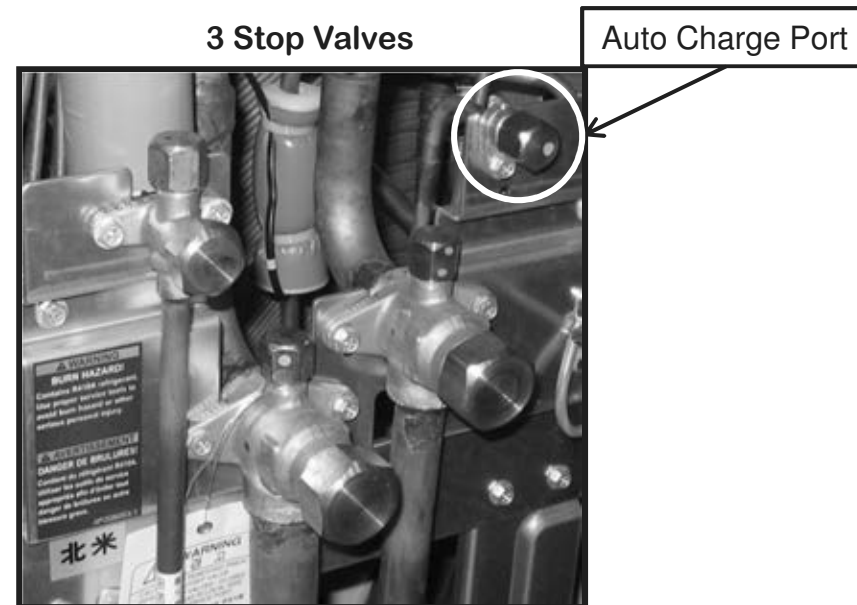
VRV VIII Heat Recovery – REYQ



Single Piped



Control PCB (A1P)

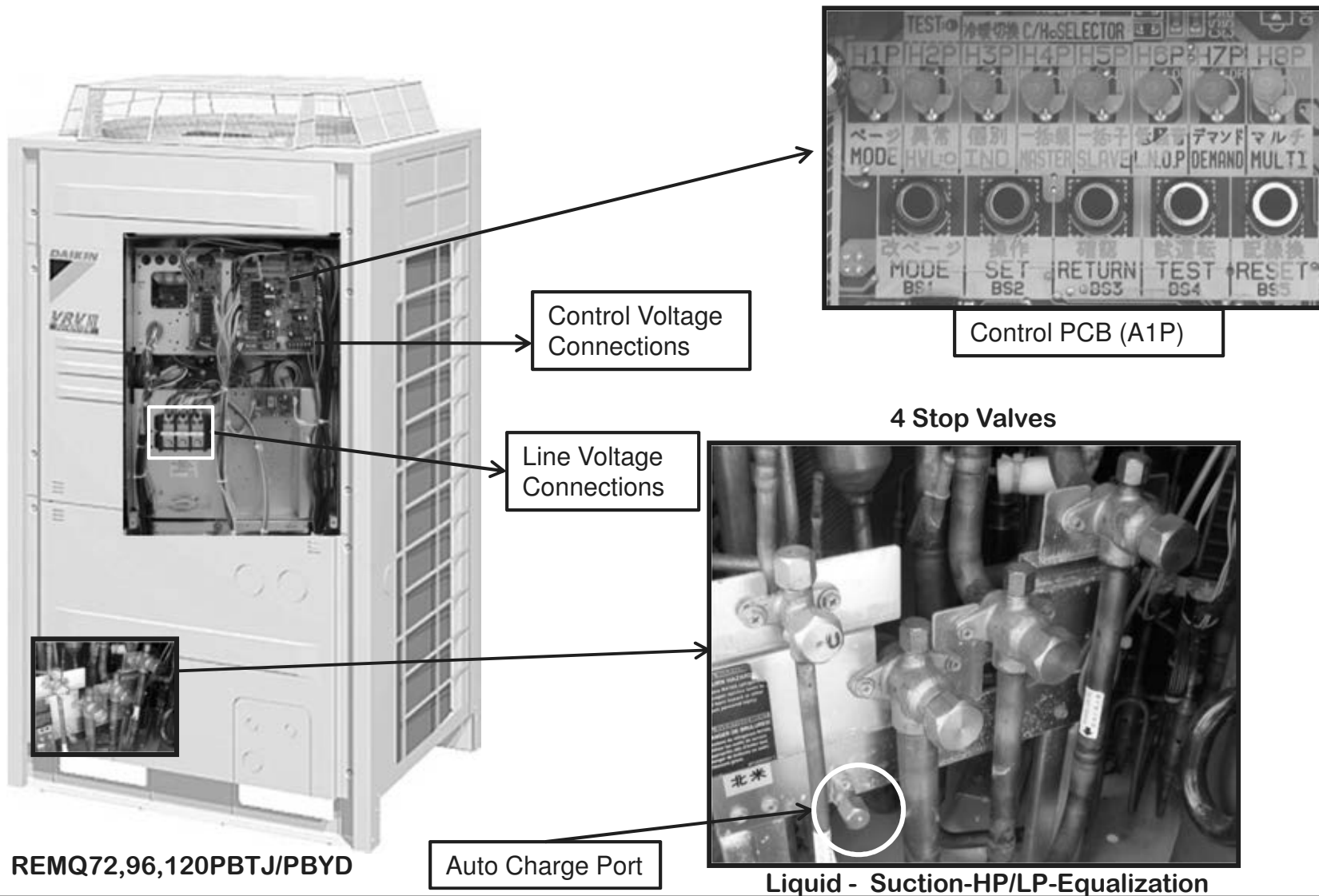


NOTE: These models cannot be manifolded

VRV^{III} Heat Recovery – REMQ



Manifolded Module



System Commissioning

Pre-Commissioning Checks & Commissioning Steps

Pre-Commissioning Checks 1 - 10

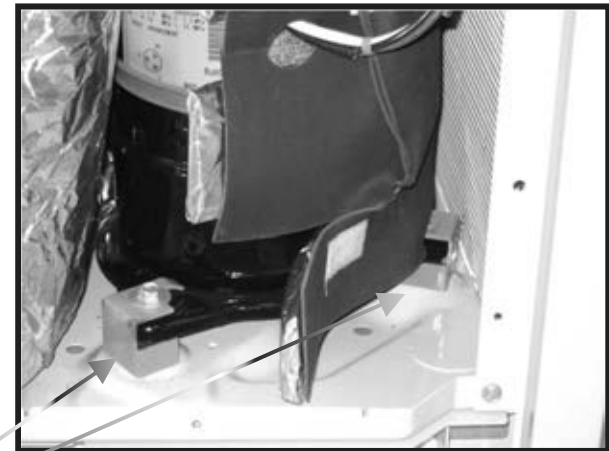


Pre-Commissioning Checks

1. Compressor shipping brackets removed
2. Stop Valves securely closed & field refrigerant piping pressure tested to 550 psi (450psi FXTQ) for 24 hours min. Include Pressure Equalization pipe on manifolded Heat Recovery systems (PB)
3. Triple evacuate to 500 microns or less; Include Pressure Equalization pipe on HR
4. All liquid lines are measured, “Additional Refrigerant Charge” is calculated and weighed into the system, breaking the final vacuum
Alternate: 50% (trim charge) of the calculated charge weighed in for “Auto Charge” operation
5. Stop Valves opened
6. All Remote Controllers installed and all control wiring is installed and properly connected at each terminal block
7. All condensate drain piping is connected, including fan coil tie-in, and insulated as required
8. Refrigerant lines (Pressure Equalization piping) are completely insulated including flare nut connections at Indoor Units
9. All ductwork is connected and air filters installed
10. Line Voltage is checked and verified to be within specified range for all system components

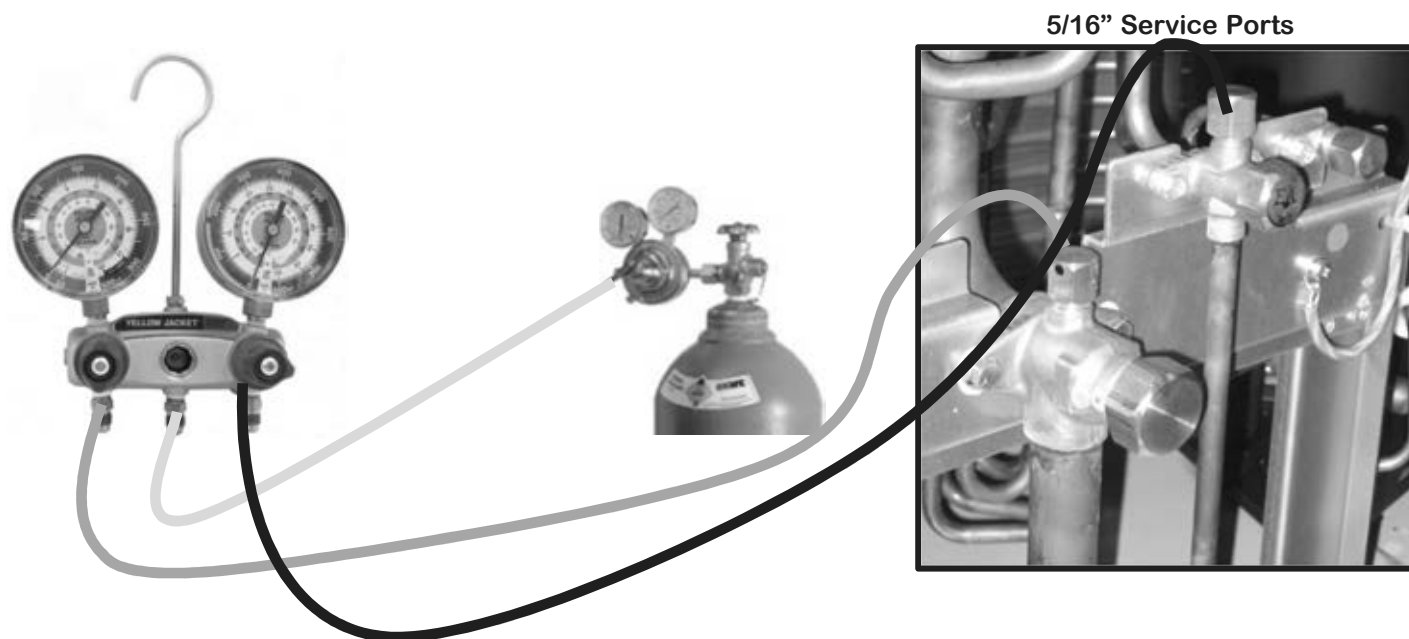
Compressor Shipping Brackets

- Compressor shipping brackets must be removed before system start up
- Each compressor is secured by 2 brackets, yellow in color, which are located under the compressor blankets
- Remove all of the brackets and retighten the compressor bolts
- Failure to remove the brackets can result in excessive noise during operation



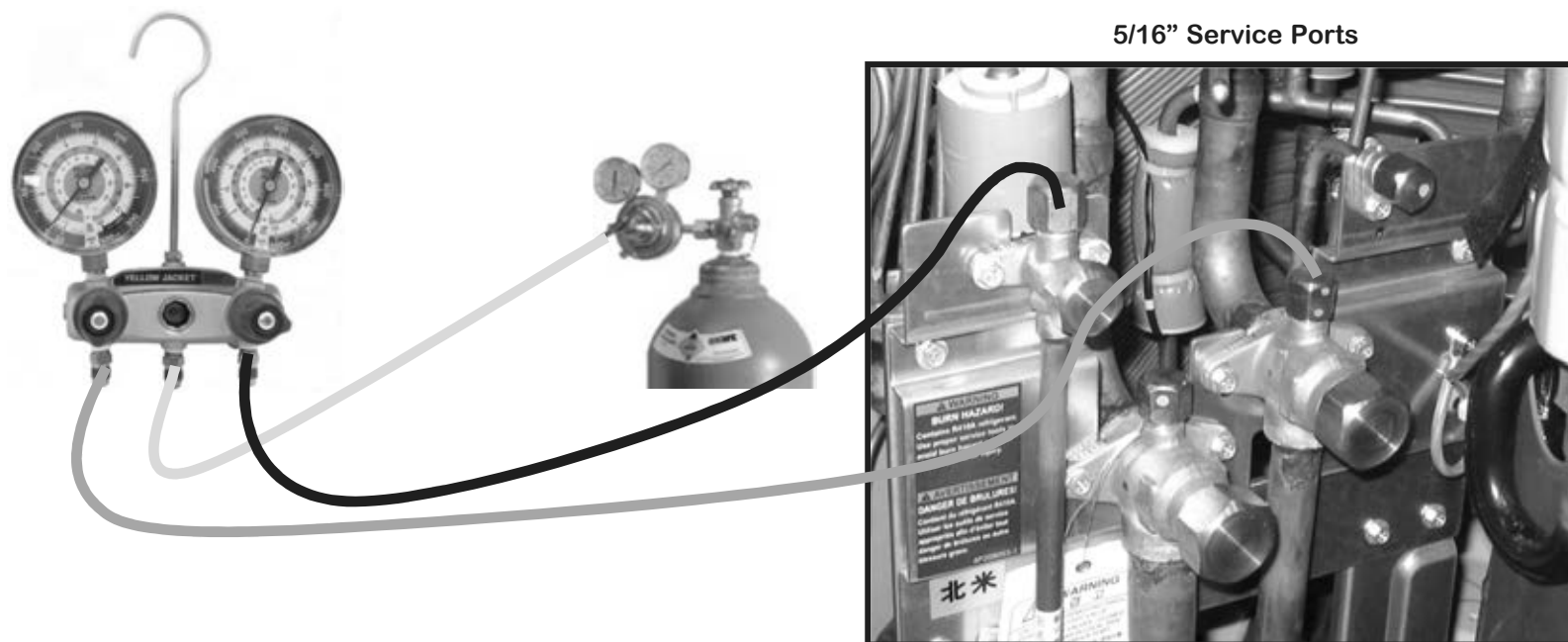
Shipping Brackets

Pressure Test Connections Heat Pump RXYQ - 2 Stop Valves



- Connect manifold gauges to the Liquid and Dual Pressure Gas Service Ports
 - On Manifolder systems connect gauges to the main condenser
- Connect Nitrogen cylinder with regulator to manifold
- Do not energize the indoor units. Indoor unit EEVs close when power is applied
 - If EEVs have closed use Recovery/Evacuation Mode to reopen all EEVs
- Follow the Pressure Test procedure, and perform a system leak test.

Pressure Test Connections Heat Pump & Heat Recovery 3 Stop Valves RXYQ144PBTJ, REYQ72,96,120,144PBTJ & REYQ72,96,120PBYD



- Connect manifold gauges to the Liquid and Dual Pressure Gas Service Ports
- Connect Nitrogen cylinder with regulator to manifold
- Do not energize the indoor units (or branch selector boxes for heat recovery). Indoor unit and branch selector box EEVs close when power is applied
 - If EEVs have closed use Recovery/Evacuation Mode to reopen all EEVs
- Follow the Pressure Test procedure, and perform a system leak test.

Pressure Test Connections Heat Recovery REMQ 4 Stop Valves

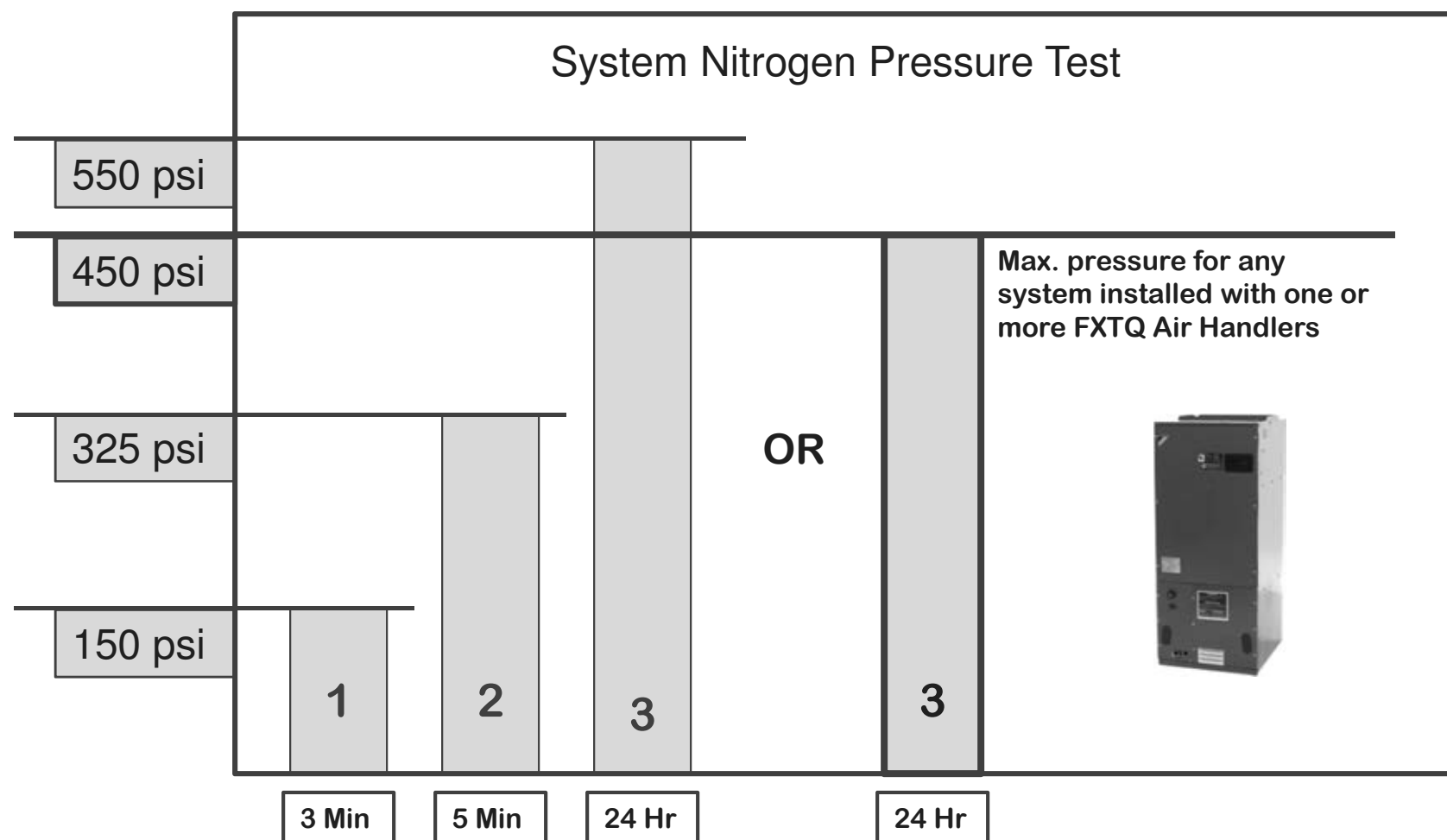


5/16" Service Ports

- Connect manifold gauges to the Liquid and Dual Pressure Gas Service Ports on the Main unit
 - Pressure test the Pressure Equalization Pipe separately
- Connect Nitrogen cylinder with regulator to manifold
- Do not energize the indoor units or branch selector boxes. Indoor unit and branch selector box EEVs close when power is applied
 - If EEVs have closed use Recovery/Evacuation Mode to reopen all EEVs
- Follow the Pressure Test procedure, and perform a system leak test.

3 Step System Pressure Test

Verify all Stop Valves are securely closed before pressure test



Nitrogen Pressure Testing Considerations

Nitrogen pressure is subject to fluctuation above 300 psi, based on ambient temperature changes. Use this formula to compensate for temperature changes from one day to the next when performing the 24 hour pressure test. The following formula will determine system pressure drop caused by low ambient temperature.

Record the **T**emperature when the system is **p**ressurized (**T_p**)
Subtract the **T**emperature when the pressure is **c**hecked (**T_c**)
Multiply by a factor of 0.80 to get the **P**ressure **D**rop (**PD**)

$$(T_p - T_c) \times 0.80 = \text{Pressure Drop}$$

System Triple Evacuation



- Minimum 6 cfm vacuum pump with check valve
 - Digital Micron Gauge
 - Insure Vacuum hoses are in good condition
 - Indoor units (and branch selector boxes, heat recovery only) must not be energized to insure EEVs are open
 - Evacuate the refrigerant piping to 4,000 microns
 - Break the vacuum with Dry Nitrogen to a level of 2-3 PSIG
 - Evacuate the system to 1,500 microns
 - Break the vacuum with Dry Nitrogen to a level of 2-3 PSIG
 - Evacuate the system to 500 microns or less
 - Conduct a micron rise test; system should hold 500 microns for 1 hour
- Hold vacuum for liquid refrigerant charging – Do Not remove manifold gauges

Evacuation Connections Heat Pump RXYQ 2 Stop Valves

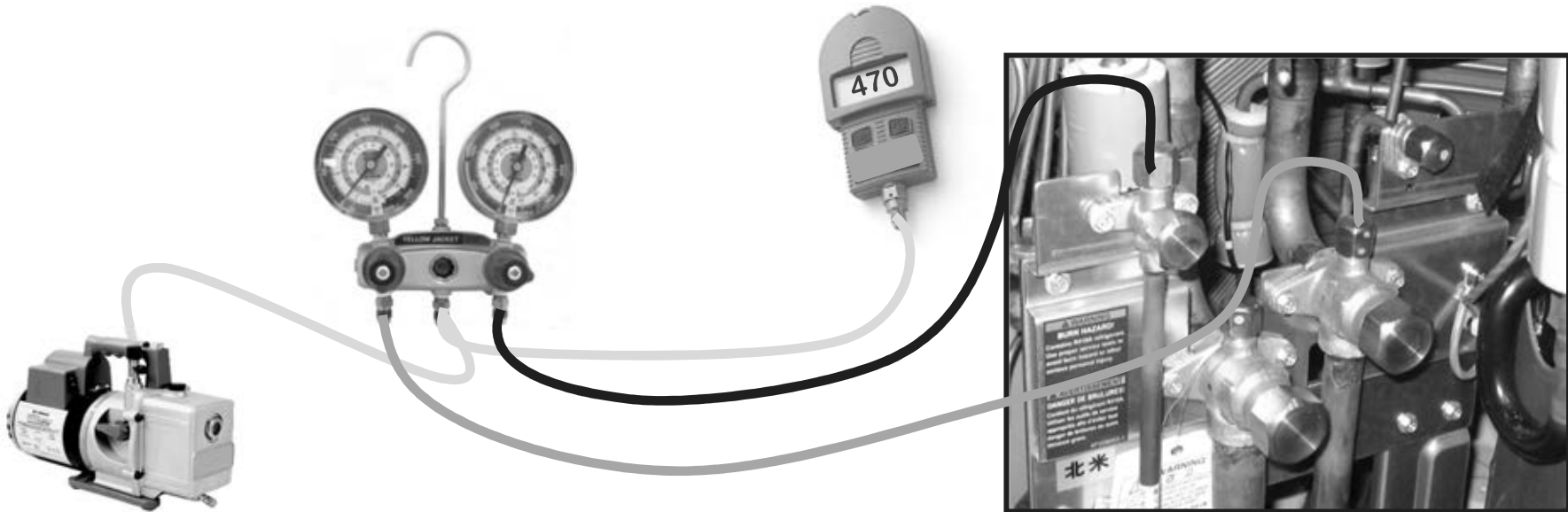


- Connect manifold gauges to the Liquid and Dual Pressure Gas Service Ports
 - On manifolded systems connect gauges to the main condenser
- Connect vacuum pump and micron gauge
- Do not energize the indoor units. Indoor unit EEVs close when power is applied
 - If EEVs have closed use Recovery/Evacuation Mode to reopen all EEVs
- Triple evacuation down to 500 microns or less using Dry Nitrogen to break vacuum
 - The final vacuum is used to draw in the calculated “Additional Refrigerant Charge” amount by weight

VRV/III Pre-Commissioning Check #3 Cont.

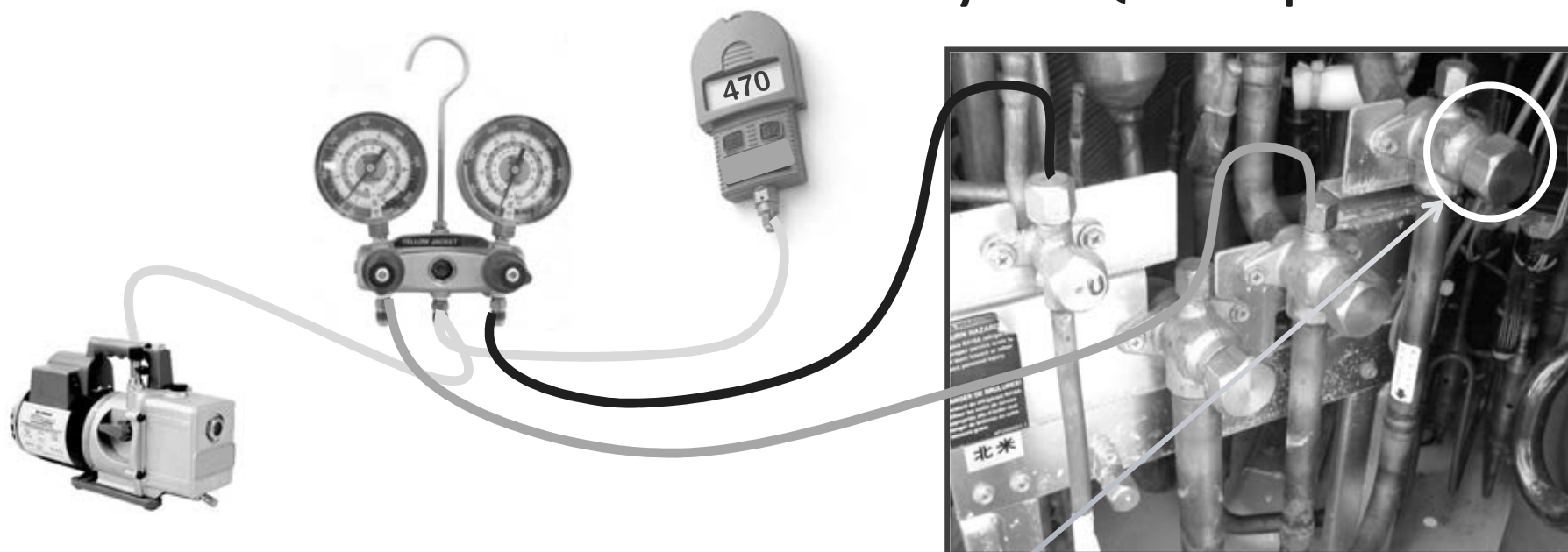


Evacuation Connections Heat Pump & Heat Recovery 3 Stop Valves RXYQ144PBTJ - REYQ72,96,120,144PBTJ & REYQ72,96,120PBYD



- Connect manifold gauges to the Liquid and Dual Pressure Gas Service Ports
- Connect vacuum pump and micron gauge
- Do not energize the indoor units (or branch selector boxes for heat recovery). Indoor unit EEVs close when power is applied
 - If EEVs have closed use Recovery/Evacuation Mode to reopen all EEVs
- Triple evacuation down to 500 microns or less using Dry Nitrogen to break vacuum
 - The final vacuum is used to draw in the calculated “Additional Refrigerant Charge” amount by weight

Evacuation Connections - Heat Recovery REMQ - 4 Stop Valves



- Connect manifold gauges to the Liquid and Dual Pressure Gas Service Ports on the Main unit
 - Pressure Equalization Pipe is evacuated separately
- Connect vacuum pump and micron gauge
- Do not energize the indoor units or branch selector boxes. Indoor unit and branch selector box EEVs close when power is applied
 - If EEVs have closed use Recovery/Evacuation Mode to reopen all EEVs
- Triple evacuation down to 500 microns or less using Dry Nitrogen to break vacuum cycles
 - The final vacuum is used to draw in the calculated “Additional Refrigerant Charge” amount by weight

VRV^{III} System Refrigerant Charging Facts

- Accurate refrigerant charging is critical for optimum system performance
- *Daikin VRV* systems cannot be charged by refrigerant operating pressures, superheat or subcooling temperatures; refrigerant is weighed into the system
- All VRV^{III} condensers have a factory refrigerant charge based on the unit model
 - The VRV^{III} Condensers state the factory refrigerant charge on the unit ID Plate
- Proper VRV^{III} system charging requires an “Additional Refrigerant Charge” amount to be calculated which is based in part by the total actual length of the system Liquid lines.
- The total system refrigerant charge is comprised of the factory charge in the condenser(s), and the “Additional Refrigerant Charge” amount calculated for that system



REFRIGERANT R410A 20.1 LBS.



TOTAL
SYSTEM
CHARGE

“Additional Refrigerant Charge”

VRVIII System Refrigerant Charge Procedures

- It is recommended that all VRVIII systems be manually charged based on the calculated “Additional Refrigerant Charge” for the system being commissioned
 - Measure the total linear footage of each Liquid line pipe size in the entire system
 - Calculate the “Additional Refrigerant Charge” based on the three part calculation procedure for the system being commissioned
 - After determining the amount of the “Additional Refrigerant Charge”, use the vacuum in the system from the final evacuation cycle, and weigh in liquid refrigerant through the Liquid service port.
 - If there is not enough vacuum to draw in the total charge, use the “Additional Refrigerant Charge Mode” to complete the system charging process
See Commissioning Step #5
 - If *Auto Charge* is to be used, use the final vacuum to charge the system with at least 50% of the calculated “Additional Refrigerant Charge” then using *Auto Charge* “Cool Mode” to complete the charging process. (See *Auto Charge* Limitations)
- After the system receives the full or partial charge, all of the stop valves may be opened (Pre-Commissioning Step #5)

VRV^{III} “Additional Refrigerant Charge” Manual Calculation

The example system for this exercise is: **RXYQ144PBTJ** Heat Pump
System Connection Ratio is 105%
Connection ratio can be found in the VRV Xpress file.

Calculation A

Total length (ft) of 1/4” liquid line 254 X .015 lbs/ft = 3.81

+

Total length (ft) of 3/8” liquid line 173 X .040 lbs/ft = 6.92

+

Total length (ft) of 1/2” liquid line 78 X .081 lbs/ft = 6.31

+

Total length (ft) of 5/8” liquid line 52 X .121 lbs/ft = 6.29

+

Total length (ft) of 3/4” liquid line 0 X .175 lbs/ft = 0.00

+

Total length (ft) of 7/8” liquid line 0 X .249 lbs/ft = 0.00

Liquid Line Example Total: 23.33 Lbs

Heat Pump RXYQ - Add total amount from **Calculation A** to **Calculation B**

OR

If Heat Recovery REYQ_
Multiply **Calculation A Total** by: **1.02** and add amount to **Calculation B**

Calculation B

Heat Pump

MODEL NAME	Refrigerant Amount
RXYQ 96, 120, 216, 240, 336, 360P	0.0 lb
RXYQ 72 , 168, 192, 264, 288, 312P	1.1 lb
RXYQ 144PBYD	2.2 lb
RXYQ 144PBTJ	7.9 lb

Heat Recovery

MODEL NAME	Refrigerant Amount
REYQ 72 ~ 120PBYD REYQ 72 ~ 144PBTJ	7.9 lb
REYQ 144PBYD REYQ 168 ~ 192P	2.2 lb
REYQ 216 ~ 240P	3.3 lb
REYQ 264 ~ 288P	5.5 lb
REYQ 312 ~ 336P	6.6 lb

Calculation A + Calculation B

23.33 lbs.

7.9 lbs.

VRVIII Pre-Commissioning Check #4 Cont.



NOTE: For systems with Connection Ratio above 130%, contact Service Hotline

Calculation C

Heat Pump		
Connection Ratio	RXYQ 72 ~ 312PBYD RXYQ 72 ~ 312PBTJ	RXYQ 336 ~ 360PBYD RXYQ 336 ~ 360PBTJ
MORE THAN 100% AND LESS THAN 120%	1.1 LB	1.1 LB
MORE THAN 120% AND LESS THAN 130%	1.1 LB	2.2 LB

If system Connection Ratio is 100% or less, no additional refrigerant is required for Calculation C

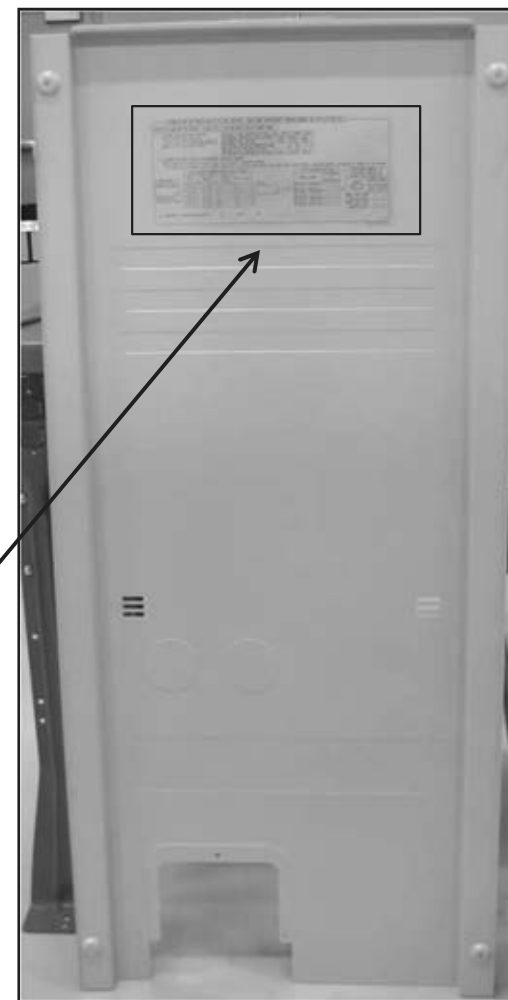
Heat Recovery		
Connection Ratio	REYQ 72 ~ 120PBYD REYQ 72 ~ 120PBTJ REYQ 144 ~ 312PBYD REYQ 168 ~ 312PBTJ	REYQ 336PBYD REYQ 336PBTJ
MORE THAN 100% AND LESS THAN 120%	1.1 LB	1.1 LB
MORE THAN 120% AND LESS THAN 130%	1.1 LB	2.2 LB

Calculation A + Calculation B + Calculation C = Total
23.33 lbs. 7.9 lbs. 1.1 lbs. 32.3 lbs. (32 lbs. 5 oz.)

NOTE: .1 lbs. = 1.6 oz. (round up)

VRVIII System Refrigerant Charge Procedures

- Refrigerant Charging Instructions are listed on a field installed label located in the clear plastic packet which is taped to the control box cover
- Remove the label backing and apply the clear label to the inside of the condenser's access panel.
- Enter all of the liquid line lengths, and the calculated Additional Refrigerant Charge. This information is crucial for future service work



REQUEST FOR THE INDICATION OF SETTING CONTENTS, ADDITIONAL REFRIGERANT CHARGING AMOUNT AND INSTALLATION DATE

AFTER FILLING OUT THE BELOW, PLEASE PUT IT ON THE BACK SIDE OF FRONT PANEL

1. RECORD FOR SETTING CONTENTS
FOR THE SETTING CONTENTS OF ①-④
IN THE SETTING MODE 2,
MARK ○ IN THE RIGHT TABLE.

① NIGHT - TIME LOW NOISE SETTING	OFF • LEVEL1 • LEVEL2 • LEVEL3
② EXTERNAL LOW NOISE LEVEL SETTING	LEVEL1 • LEVEL2 • LEVEL3
③ DEMAND LEVEL SETTING	LEVEL1 • LEVEL2 • LEVEL3
④ EXTERNAL LOW NOISE DEMAND SETTING	OFF • ON
⑤ HIGH STATIC PRESSURE SETTING	OFF • ON

2. RECORD FOR ADDITIONAL REFRIGERANT CHARGING AMOUNT
MAKE SURE TO RECORD THE ADDITIONAL REFRIGERANT CHARGING AMOUNT,
(IF DO NOT USE AUTOMATIC REFRIGERANT CHARGING, CALCULATE AND CHARGE THE ADDITIONAL REFRIGERANT CHARGING AMOUNT FOLLOWING AS SHOWN ON THE BELOW.)

REFRIGERANT AMOUNT FOR FIELD PIPING				TOTAL
LIQUID PIPE SIZE (1/2) (PER 1/2 (1/2) (1/2))	REFRIGERANT AMOUNT	LENGTH OF LIQUID PIPE (FT)	SUB TOTAL	
#1/2	0.240	×		1 lb +
#3/4	0.125	×		
#5/8	0.121	×		
#1/2	0.081	×		
#3/8	0.040	×		
#1/4	0.015	×		

3. RECORD OF INSTALLATION DATE DA MO YR

3P280962-1A

VRVIII Pre-Commissioning Check #4 Cont.



Example System: RXYQ144PBTJ - Connection Ratio: 105%

REQUEST FOR THE INDICATION OF SETTING CONTENTS, ADDITIONAL REFRIGERANT CHARGING AMOUNT AND INSTALLATION DATE

AFTER FILLING OUT THE BELOW, PLEASE PUT IT ON THE BACK SIDE OF FRONT PANEL

1. RECORD FOR SETTING CONTENTS
FOR THE SETTING CONTENTS OF ①~⑤
IN THE SETTING MODE 2,
MARK ○ IN THE RIGHT TABLE.

① NIGHT - TIME LOW NOISE SETTING	OFF • LEVEL1 • LEVEL2 • LEVEL3
② EXTERNAL LOW NOISE LEVEL SETTING	LEVEL1 • LEVEL2 • LEVEL3
③ DEMAND LEVEL SETTING	LEVEL1 • LEVEL2 • LEVEL3
④ EXTERNAL LOW NOISE DEMAND SETTING	OFF • ON
⑤ HIGH STATIC PRESSURE SETTING	OFF • ON
2. RECORD FOR ADDITIONAL REFRIGERANT CHARGING AMOUNT
MAKE SURE TO RECORD THE ADDITIONAL REFRIGERANT CHARGING AMOUNT.
(IF DO NOT USE AUTOMATIC REFRIGERANT CHARGING, CALCULATE AND CHARGE THE ADDITIONAL REFRIGERANT CHARGING AMOUNT FOLLOWING AS SHOWN ON THE BELOW.)

REFRIGERANT AMOUNT FOR FIELD PIPING			
LIQUID PIPE SIZE(in)	REFRIGERANT AMOUNT PER 1ft(lb/ft)	LENGTH OF LIQUID PIPE(ft)	SUB TOTAL
1/8	0.249	×	=
3/8	0.175	×	=
1/2	0.121	×	52 = 6.29
3/4	0.081	×	78 = 6.31
1	0.040	×	173 = 6.92
1 1/4	0.015	×	254 = 3.81

ADDITIONAL CHARGING AMOUNT: 32.3 lb
(ROUND OFF TO ONE DECIMAL PLACE.)

TOTAL: 23.33 lb

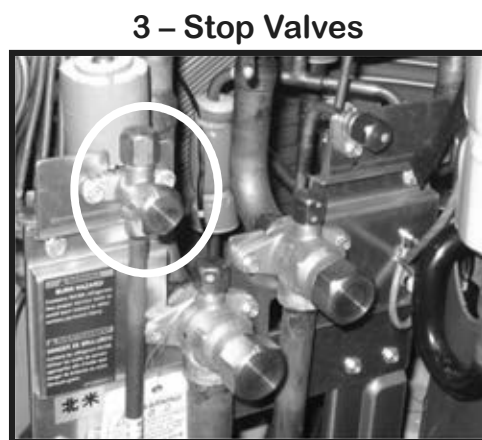
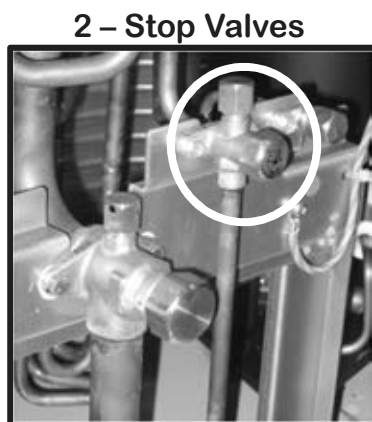
HEAT PUMP SYSTEM	
MODEL NAME	THE AMOUNT OF REFRIGERANT
RXYQ96, 120, 216, 240, 336, 360P	0 lb
RXYQ72, 168, 192, 264, 288, 312P	1.1 lb
RXYQ144PRD	2.2 lb
RXYQ144PBTJ	7.9 lb

REFRIGERANT AMOUNT FOR EXCEEDING CONNECTION CAPACITY OF INDOOR UNIT		
INDOOR CONNECTION CAPACITY	MODEL NAME	
	RXYQ72 ~312P	RXYQ336 ~360P
MORE THAN 100% 120% OR LESS	1.1 lb	
MORE THAN 120% 130% OR LESS	1.1 lb	2.2 lb

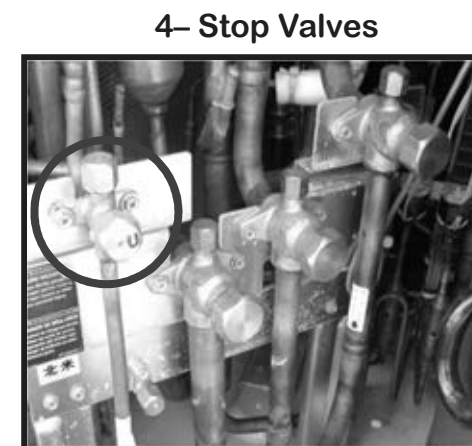
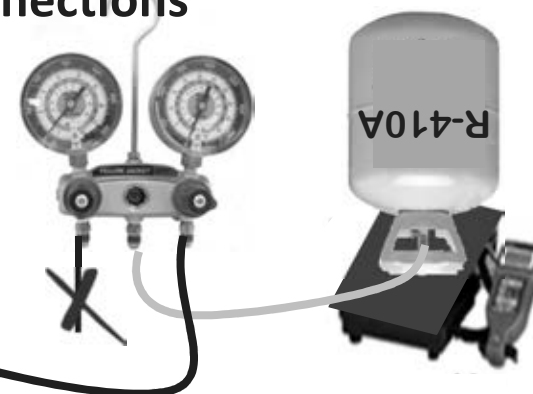
3. RECORD OF INSTALLATION DATE: DA 29 • MO 07 • YR 2011

- Enter the piping lengths accurately for each liquid line diameter and multiply the charge factor
- Add the refrigerant amount for the model of the unit or system you are commissioning
- Add the refrigerant amount for the connection ratio your system has – If 100% or less, no add'l refrigerant amount required
- When charging the system manually, write in the total Additional Refrigerant Charge
- If *Auto Charge* COOL mode is used, write in the charge amount taken after *Auto Charge* is complete
- Write down the system commissioning date

Manual Refrigerant Charging Connections

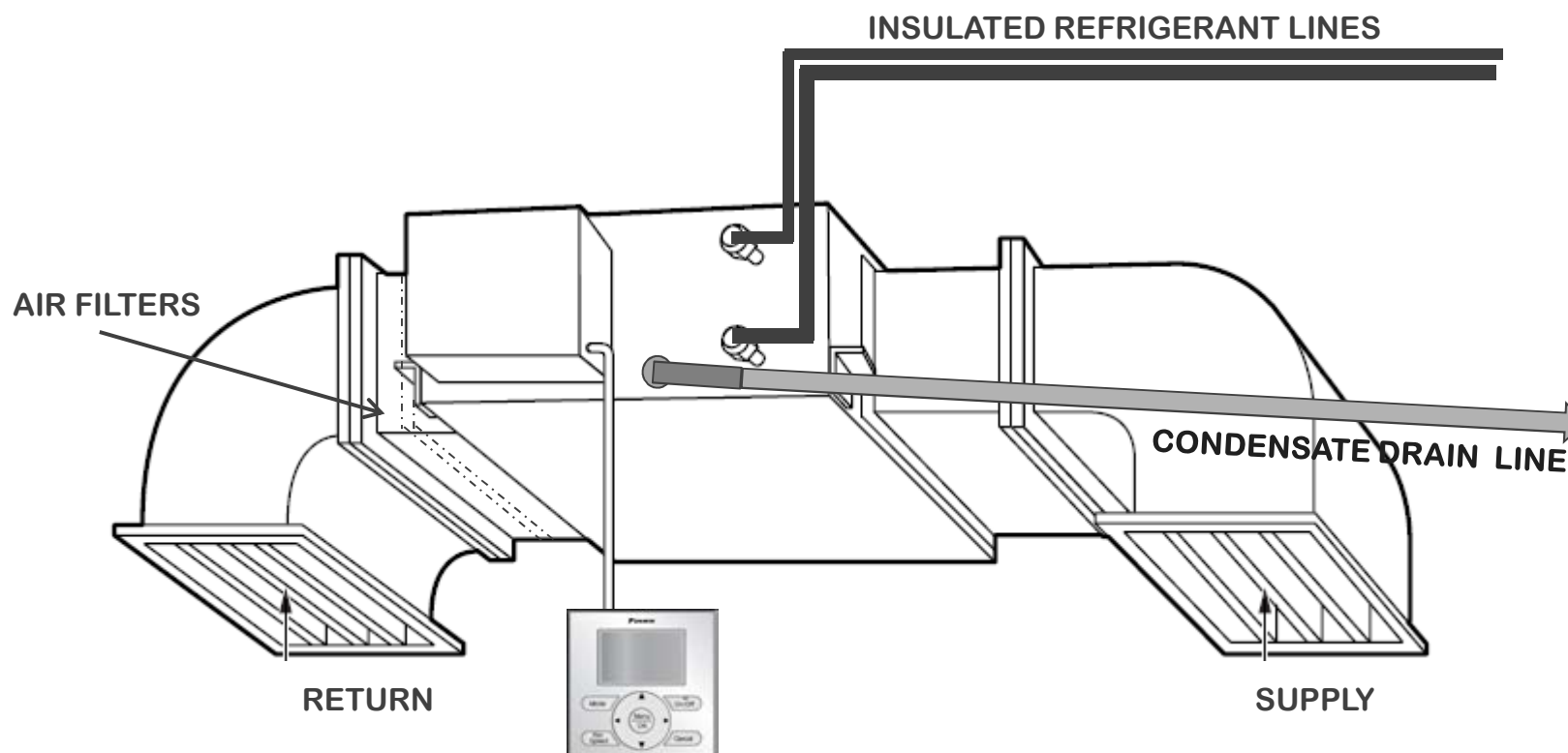


5/16" Liquid Port



- Low side manifold hose is not used for this procedure
- The high side manifold hose should still be connected to the Liquid service port, from evacuation
- Break the final vacuum by weighing in the entire calculated charge or as much as possible into the system
 - If there is not enough vacuum to draw in the calculated charge, use the “Additional Refrigerant Charge Mode” to complete
- When using *Auto Charge*: Weigh in, through the liquid port, at least 50% of the calculated “Additional Refrigerant Charge” amount to break the vacuum

- All Stop Valves on the Condenser(s) are full open
- All Remote Controllers are installed and properly wired
- All condensate piping is installed on condenser(s) as required and all fan coils
- Refrigerant lines are completely insulated including fan coil flare nut connections
- All ductwork is installed and sealed; all air filters are installed



Verify Power Supply Voltage



- Before energizing any of the system components, use a Voltmeter to verify that the line voltage power supply to the Condenser(s) and all Indoor Units corresponds to the equipment nameplate, and within the stated range.
 - 208/230vac 1Ph & 3Ph = 187 – 253vac
 - 460vac 3Ph = 416 – 508vac
- Verify all 3 phase legs to each condenser are in balance within 2%
 - A “U1” error code with unit stop can be generated for excessive phase imbalance, dropped phase, or reverse phase
 - A “U1” or “U7” error code with unit stop can be generated in a manifolded system
- All indoor units, fan coils and “BS” boxes are shipped with EEV’s open
 - EEV’s motor closed when line voltage power is applied to unit

System Commissioning

Commissioning Steps 1 - 9



Commissioning Steps

1. Power up all indoor units – Fan Coils and Branch Selector boxes (for heat recovery only)
2. Power up Condenser(s) to energize crankcase heaters (minimum 6 hrs) Initialization sequence starts and the system addresses are set – Setup Navigation Remote Controllers
3. Count Indoor Units: Branch Selector Boxes (for heat recovery only) and fan coil units
4. Selected Field Settings programmed at Remote Controllers (Static Pressure settings, etc.)
5. System refrigerant charge – “Manual” charge using the “Additional Refrigerant Charge Mode” or
ALTERNATE: “Auto Charge” Cool Mode - Step #A5
6. *Check Operation mode*
7. Configure the Remote Controller *Changeover Master* for the Heat Pump systems and the heat pump zones in Heat Recovery systems
8. Remaining System Field Settings
9. Verify system operation in Cool & Heat mode as outside ambient temperature conditions allow
(Heat mode is prohibited above 75.2°F outside air temperature)

Power up Indoor Units and Branch Selector Boxes

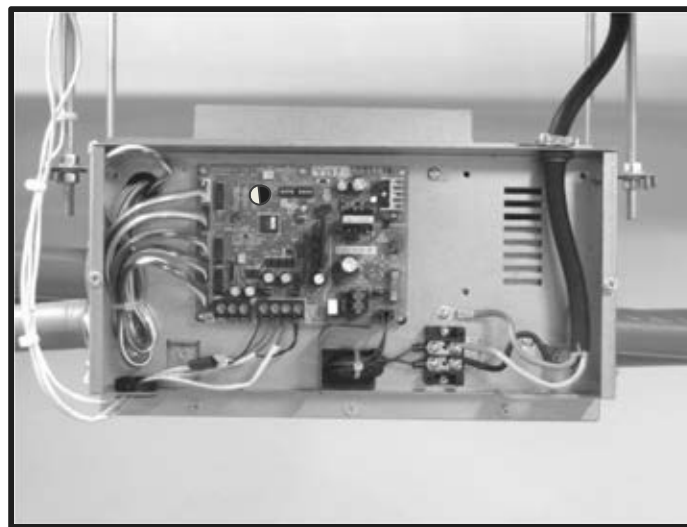
- Power up all Indoor Units and Branch Selector Boxes (Heat Recover only) **First**
 - Verify the Fan Coil and Branch Selector box control PCB's indicate normal operation with the Green flashing status LED on the board
 - Verify all wired Remote Controllers have a display but the status LED's (Green or Red) are OFF



Fan Coil Control PCB



Branch Selector Box PCB

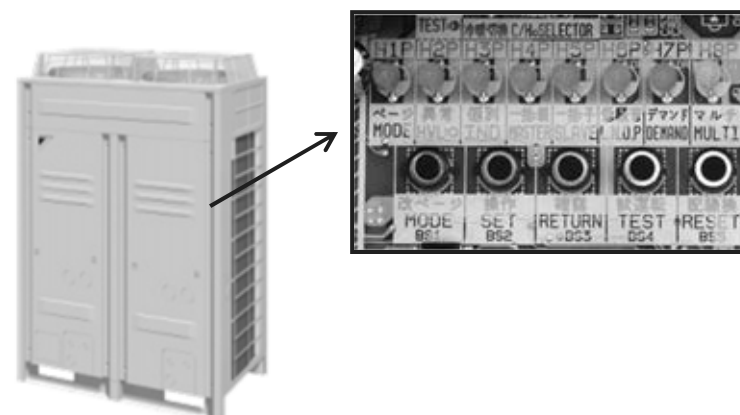


Condenser Power up

Condenser(s) are powered up after the Indoor Units and must not be operated for a period of 6 hours to insure crankcase heaters eliminate any liquid refrigerant in compressor(s). During this time, all of the Navigation Remote Controllers (BRC1E72) can be setup.

Initialization

- Upon power up of the condenser(s), the control PCB will perform the Initialization Operation for approximately 15 minutes. During this operation the addresses are assigned to the indoor units
- This mode is identified by **H2P** blinking and **H3P** solid
 - MASTER PCB on Manifolded systems
- Near completion of Initialization, **H2P** will change from blinking to solid
- When the Initialization Operation is completed **H2P** goes off and **H3P** stays on solid



○ : ON ● : OFF ◐ : BLINK

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	NA
●	◐	○	●	●	●	●		



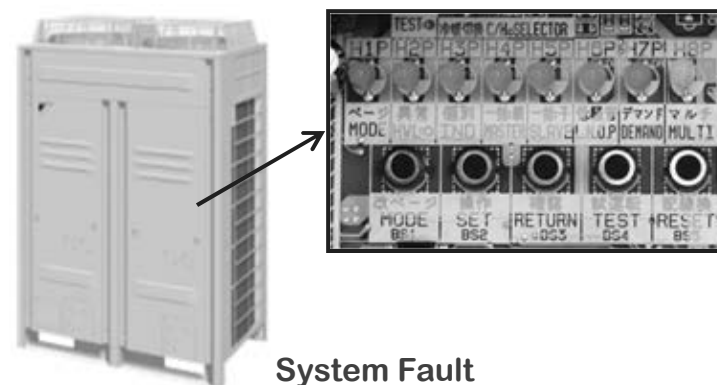
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	○	○	●	●	●	●	



H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

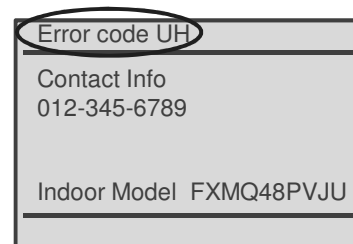
Initialization Complete
Normal System Status

Condenser Power up Error During Initialization

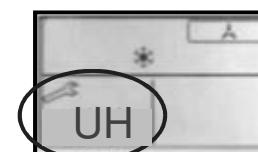


H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

- If after 25 minutes **H2P** remains on solid, there is an error in the system
 - Turn on one of the Remote Controllers and verify the error code and resolve the fault
 - Recycle power on the Condenser (Master) press and hold the **RESET** button for 5 seconds to restart Initialization Operation
- When Initialization operation is complete with no errors, the **H2P** LED goes out and **H3P** LED will be on solid



BRC1E72



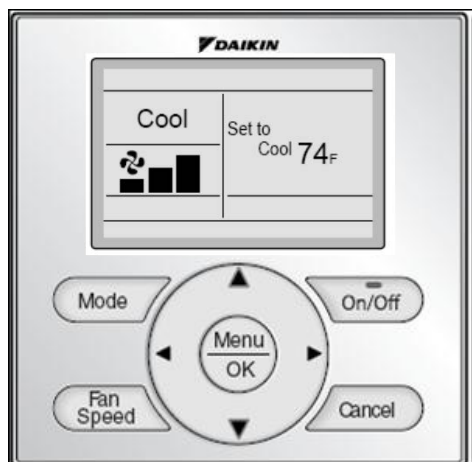
BRC2A71

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

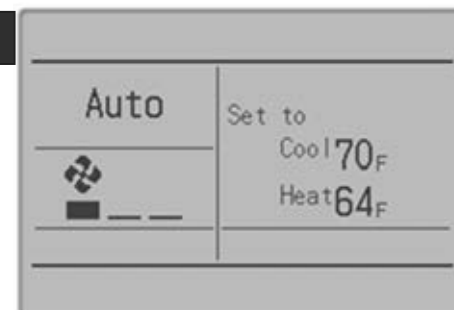
Normal System Status

BRC1E72 Navigation Remote Controller Initial Settings

- During the initial condenser power up time, all of the system BRC1E72 Remote Controllers, can be configured with the “Initial Settings” that apply. Settings can be made with Controllers in the OFF mode.



Standard



Detailed

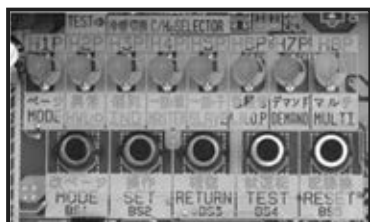


Simple



Condenser A1P Control PCB - Status LED Sequence

- Upon completion of the **Initialization** operation, the LED sequence on the single piped VRVIII condenser will have a solid H3P Note: On single piped dual fan units with 2 control PCB's, the A1P PCB will indicate H3P & H8P on solid
- Upon completion of **Initialization** on VRVIII manifolded modules, the following LED sequences will appear on the control PCB's
 - The Master A1P PCB is connected to the indoor units on **F1F2 IN**
 - Master PCB's display a solid H3P & H8P LED's to indicate normal status



○ : ON ● : OFF ◐ : BLINK

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	●

Single Piped Condenser

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	○

Manifolded Module
Master Condenser

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	●	●	●	●	●	◐

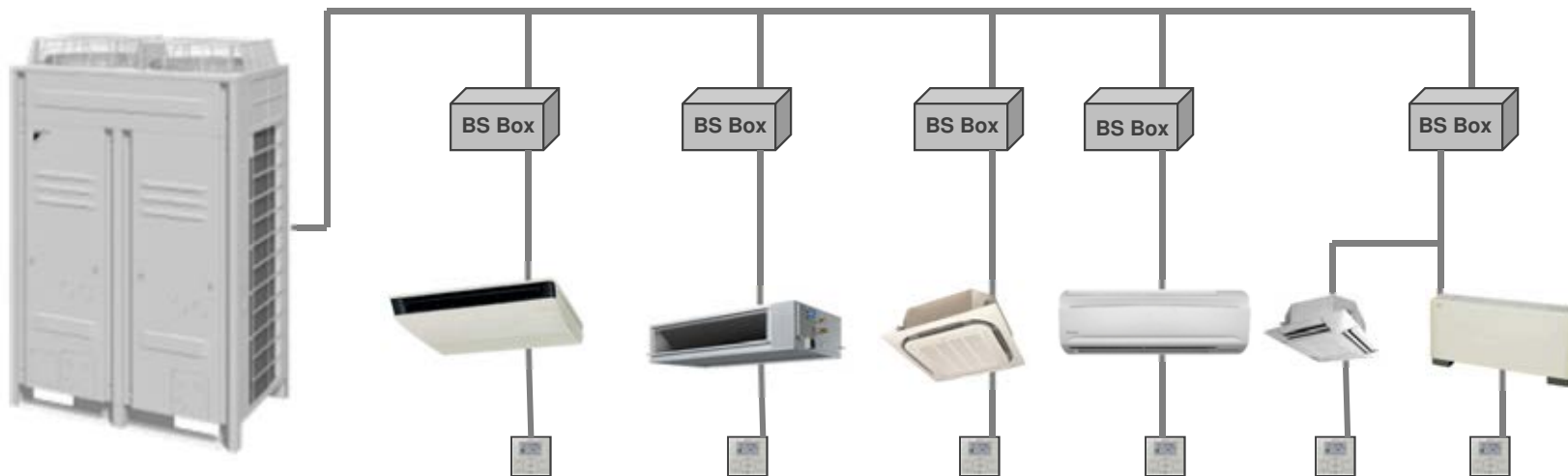
Manifolded Module
Slave 1 Condenser

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	●	●	●	●	●	●

Manifolded Module
Slave 2 Condenser

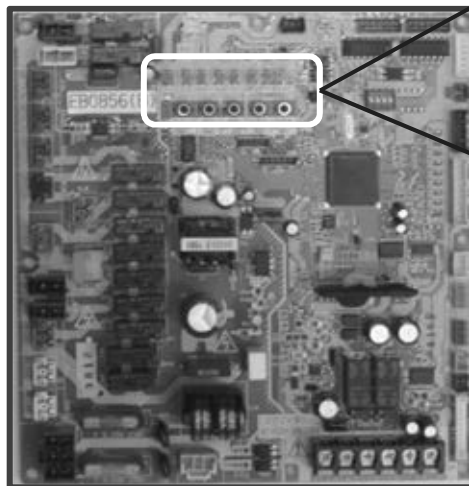
Verify System Control Communications

- When the **Initialization** operation has been completed the system must be checked to insure that all indoor units in the system are addressed and communicating.
- All system indoor units must communicate with the control system
- Using Monitor Mode 1 on the Master Control PCB on the Condenser, the Fan Coils and Branch Selector boxes in the system can be counted, verifying system communications
 - On a manifolded system, the indoor units are counted from the Control PCB on the Master Condenser



Binary Code Key for Counting Indoor Units (Example)

- Using the Condenser Control PCB status LED's, a binary number is applied to each LED: H1P through H7P as read from right to left
- When in the "Monitor Mode 1" or "Service Mode 2", the LEDs will display, using binary numbers, the number of times the "SET" button is pressed
- When counting indoor and outdoor units is enabled, the blinking LED's represent the number of units recognized in the control system



Example of binary value indications

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
0	32	16	8	4	2	1	N/A



● : OFF ◐ : BLINK

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	●	●	●	●	●	●	

Value of "0"

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	●	●	●	●	◐	●	

Value of "2"

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	●	●	●	◐	◐	◐	

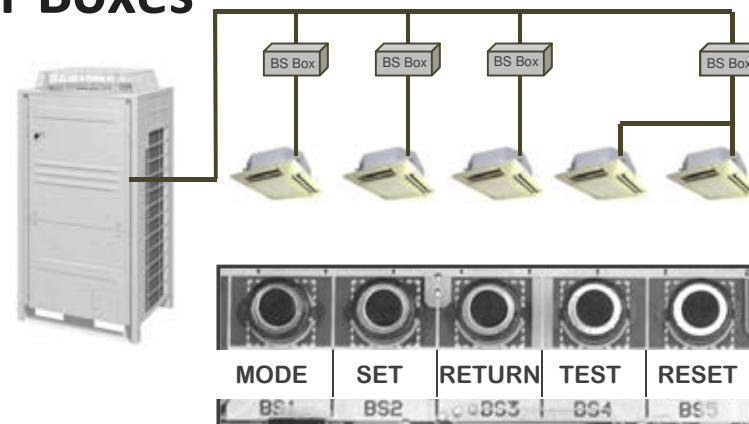
Value of "7"

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	●	●	◐	◐	●	●	

Value of "12"

Counting Branch Selector Boxes

- System Monitor Mode 1 is accessed by pressing the “**MODE**” button one time – **H1P** LED flashing
- The number of times the “**SET**” button is pressed will be indicated by the corresponding binary numbers
- H1P** to **H7P** LED status is continuously updated when any button is pressed



- Press “**MODE**” once
H1P blinking
- Press “**SET**” 6 times
- Press “**RETURN**” once
Count up the blinking LED’s
- Press “**MODE**” once
return to normal status: **H3P** solid

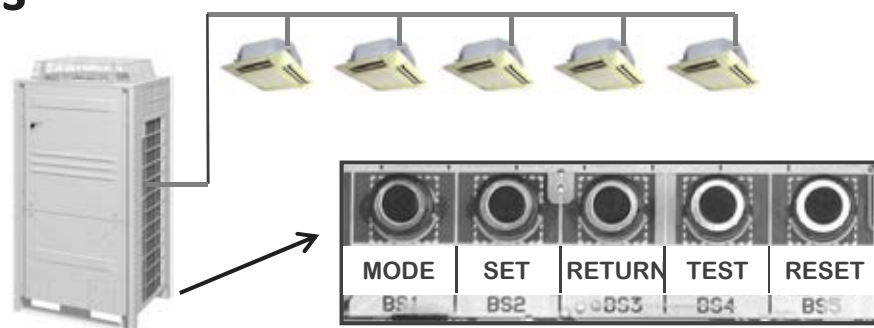
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
0	32	16	8	4	2	1	N/A
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

Indoor Fan Coil & BS Box - Communication Troubleshooting Tips

- NOTE: If a branch selector box is not communicating in the DIII-Net system, the connected fan coil(s) will also not communicate
- Verify correct power supply voltage is present at Fan Coil and Branch Selector
 - PCB status: Green LED blinking
- Verify that all Remote Controllers have a display. This will also tell you that power is applied to the indoor units
- If there are Remote Controllers controlling more than one indoor unit, you must check the green LED on each PCB to see if it is flashing green. This will tell you that power is applied to the Indoor unit or BS box. Another method is to use your meter to check for voltage
- Turn on each Remote Controller one at a time. When you turn them on, note the error code if any appears on the display
- After you have turned them all on, you should see a pattern of the error codes. The pattern should show a few of the controllers with different error codes. The remote(s) with a different code is a good place to start checking your control wiring
- Check the control wiring to insure the conductors are connected to the correct terminals and 16vdc is measured
- On installations which have multiple VRV-*WIII* Heat Pump and Heat Recovery systems, Branch Selector boxes should be counted on the Heat Pump systems to verify correct system control wiring with no crossover
- After the issues are corrected, recycle power to the (Master) Condenser (Initialization mode starts) and press and hold the **“RESET”** button for 5 seconds on the Control PCB. This will enable the indoor unit or BS box to have an address assigned.

Counting Indoor Fan Coils

- System Monitor Mode 1 is accessed by pressing the “**MODE**” button one time – **H1P** LED blinking
- The number of times the “**SET**” button is pressed will be indicated by the corresponding binary numbers
- H1P** to **H7P** LED status is continuously updated when any button is pressed



- Press “**MODE**” once
H1P blinking
- Press “**SET**” 5 times
- Press “**RETURN**” once
Count up the blinking LED’s
- Press “**MODE**” once
return to normal status: **H3P** solid

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
0	32	16	8	4	2	1	N/A
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

Fan Coil – Forced Fan On Mode

- A very effective procedure to help troubleshoot missing indoor Fan Coil units is to force the fan coil blowers to “ON”. By forcing the fans on, you will see what indoor units are communicating with that particular system.
- In jobs where you have multiple systems being installed, during the installation occasionally one indoor unit will get wired to the wrong outdoor unit. Using the “Forced Fan On” procedure, you will quickly see what units are connected by which fans turn on
- Using the Forced Fan ON operation, enables the control system to put the Fan Coil fan motor in High fan speed
- The fan coils that do not respond by switching on the fan motor are the units not communicating with the control system
- Use the following page to put the fan coil fan motors into this mode

Forced Fan ON Procedure

- At start - LED status Normal – H3P solid →
SERVICE MODE 2
- Press and Hold the “**MODE**” button for approx 5 seconds until you see the H1P LED on solid →
- Press the “**SET**” button 5 times
H1P-H7P LEDs will indicate the binary number for each press of the “**SET**” button →
- Press the “**RETURN**” button once
H7P flashing – This operation status: OFF →
- Press the “**SET**” button once
H6P flashing - Turn operation ON →
- Press the “**RETURN**” button once
H6P solid - Lock the setting →
- Press the “**RETURN**” button once
H6P Off - Activate the setting
 - **STOP - Check all the fan coils for the blower(s) that are not running**
- Press the “**MODE**” button once
H3P solid - Normal Operation →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	○	●	○	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	◐	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	◐	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	○	●	

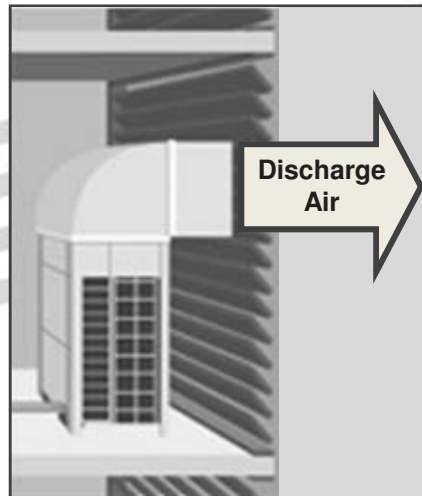
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

System Commissioning

Selected Condenser Field Setting - Commissioning Step #4

**Outdoor Fan
High Static
Setting**



Required for interior
condenser installations
where the discharge air
is ducted to outside of
the building

VRVIII System Commissioning – Step #4



Condenser “Fan High Static Setting”

- **START** - H3P solid - Normal Status
- Press and HOLD the **“MODE”** button for 5 sec. until H1P LED is Solid
- Press the **“SET”** button 18 times
 - LEDs will indicate binary number for every press of the “SET” button 0+16+2
- Press the **“RETURN”** button once H7P flashing – This operation is OFF
- Press the **“SET”** button once H6P flashing – Turn operation ON
- Press the **“RETURN”** button once H6P solid – Lock the setting
- Press the **“RETURN”** button once H1P solid – High Static Fan has been activated
 - Outdoor Fans now operating at .32” wg. No relays actuate, just go right to next step.
- Press the **“MODE”** button to return to Normal mode, H3P will be on solid

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	○	●	●	○	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	◐	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	◐	●	

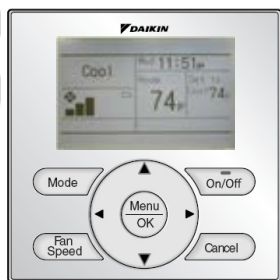
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	○	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

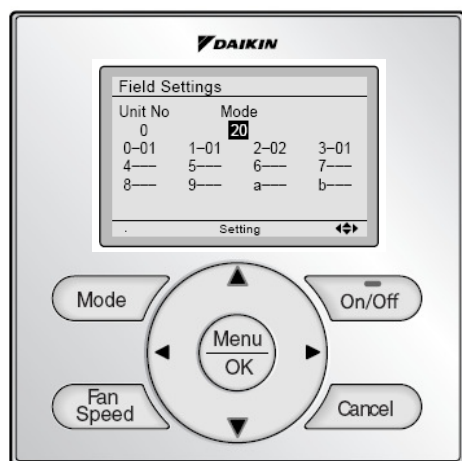
System Commissioning

Selected Indoor Unit Field Settings - Commissioning Step #4

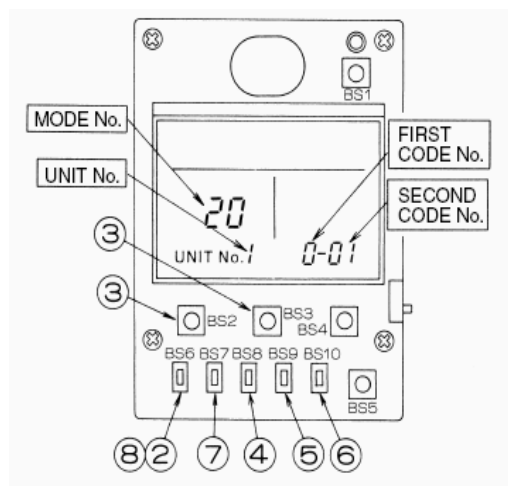


Fan Coil Field Settings

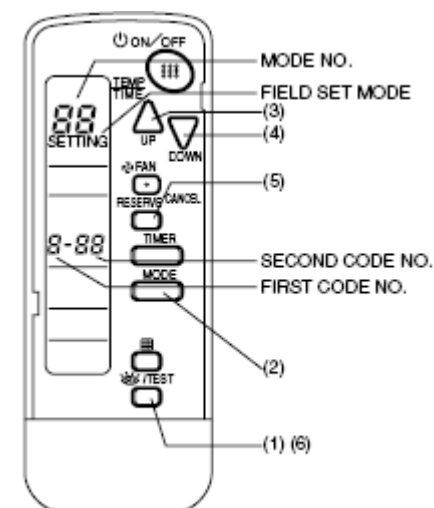
- System communications is now verified and fully operational
- All ductwork is connected and all air filters are installed
- Fan coil Field Settings related to airflow static pressure adjustments can now be programmed at the Remote Controllers, before Check Operation is enabled
 - Ducted fan coils may require the static pressure be adjusted or programmed
 - Ceiling Cassette fan coils must be programmed for 2-way & 3-way supply air distribution and ceiling height (FXFQ), to optimize unit operating parameters
- The field settings for each fan coil are listed in the unit Installation Manual



Navigation Remote



Simplified



Wireless

Fan Coil Field Settings

- Field settings provide unique features and functions to be programmed into the control system for selected fan coil(s) connected to a remote controller.
- Only those program codes that apply to the connected fan coil(s) will appear in the Field Settings code display on the Remote Controller.
- There are two Modes for each setting; “Group” & “Individual”
- The first set of 2-digit numbers refers to **Group** and **Individual**, Group is the first number & Individual is in the parenthesis
- “**Group ##**” is used if there is only one indoor unit per Remote Control or the setting you chose is intended for all indoor units being controlled by the connected Remote Controller
- “**Individual (##)**” is used when there is more than one indoor unit being controlled by one Remote Control and the settings being programmed are intended for one of the indoor units in the group

Mode No. (Note 1)	First Code No.	Description	Second Code No. (Note 2) (Cells in bold are factory default settings)			
			01	02	03	04
10(20)	2	Priority of thermistor sensors for space temperature control	The return air thermistor is primary and the remote controller thermistor is secondary.	Only the return air thermistor will be utilized.	Only the remote controller thermistor will be utilized.	--
	5	Room temperature value reported to multizone controllers	Return air thermistor	Thermistor designated by 10-2 above (Note 3)	--	--
	6	The remote controller thermistor is used in Remote Controller Group	No	Yes	--	--
12(22)	0	KRP1B71 X1-X2 status output	Indoor unit Thermo-On/Off status	--	Indoor unit Operation On/Off status	Indoor unit Alarm status
	1	Indoor unit T1-T2 input	Forced Off Closed Contact-Indoor unit is forced off and Central Control icon is displayed. Unit cannot be turned on manually. Operation can be overridden by central control. Open Contact-Indoor unit can resume normal operation. Unit must be turned on manually or by central control.	On/Off Closed Contact-Indoor unit is turned on. Open Contact-Indoor unit is turned off. Unit responds to last command, i.e., unit can be turned on manually or by central control after circuit has opened. Operation is prohibited when remote controller On/Off control is restricted by a multizone controller.	External Protection Device Closed contact-Unit shall resume normal operation. Open contact-Unit shall shut down and generate an A0 error.	
	2	Thermo-On/Off deadband (Note 4)	2F (1C)	1F (0.5C)	--	--
	3	Fan Speed in Heating Thermo-Off	LL	User set	Off	--
	6	Fan Speed in Cooling Thermo-Off	LL	User set	Off	--
	8	Return air sensor offset	2C	None (for remote sensor)		

Fan Coil Field Settings

- Field Setting codes are comprised of 3 segments: Example: **12 -1- 03**
 - Mode No.** – Program Setting for 1 fan coil or Group of fan coils within Setting Contents
 - First Code No.** - Setting Contents
 - Second Code No.** - Specific Operation or Setting
- Specific Field Setting codes for a particular fan coil can be found in the Fan Coil Installation Manual or Engineering Manual
 - Any Field Setting codes that do not apply to the particular fan coil will not appear or be selectable
- Field Settings are programmed to permanent memory in the Fan Coil(s) Control PCB

EXAMPLE: Field Setting for optional condensate pump float switch connected to fan coil T1 T2 Forced Off

Mode No.	First Code No.	Setting Contents	Second Code No				Details No
			01	02	03	04	
	0	Optional accessories output selection (field selection of output for adaptor for wiring)	Indoor unit turned ON by thermostat	—	Operation output	Malfunction output	(5)
12 (22)	1	ON/OFF input from outside (Set when ON/OFF is to be controlled from outside.)	Forced OFF	ON/OFF control	External protection device input	—	(6)

Fan Coil Field Settings – FXMQ_P Auto Static Adjust

- Enter the Field Setting into the Remote Controller
 - 11(21) 7-03 Start Auto Adjust**
- Save Field Setting and exit to main display
- Select FAN mode
- Place Remote Controller into the ON operation with solid status LED
- Fan Coil will go into the Auto Adjust mode and run the blower for 8 to 10 mins.
- On completion of the operation, fan will shut down and status LED on the Remote Controller will go Off.
- After unit shuts down check to see that Field Setting 11(21) 7-03 has changed to 11(21) 7-02, this indicates successful completion of Auto Airflow Adjustment



MODE NO.	FIRST CODE NO.	Setting contents
11 (21)	7	Airflow adjustment
SECOND CODE NO.		
01	02	03
OFF	Completion of airflow adjustment	Start of airflow adjustment

NOTE: If you choose to manually set static pressure the Field Setting for Auto Adjust must be OFF. Change code to: 11(21) 7-01

Fan Coil Field Settings – FXMQ_P Manual Static Pressure Adjust



- Specific static pressure can be programmed based on the static pressure codes provided for the specific FXMQ_P capacity model
 - Static pressure codes are listed in the Installation Manual
 - Codes which do not apply to a specific capacity model are not selectable
- Field Setting Code: **13(23) 06- ##**
- “Auto Adjust” must be OFF
11(21)7-01

External Static Pressure	MODE NO.	FIRST CODE NO.	SECOND CODE NO.
0.12 inWG (*1)	13 (23)	06	01
0.20 inWG			02
0.24 inWG			03
0.28 inWG			04
0.32 inWG			05
0.36 inWG			06
0.40 inWG			07
0.44 inWG (*2)			08
0.48 inWG (*2)			09
0.52 inWG (*2)			10
0.56 inWG (*2)			11
0.60 inWG (*2)			12
0.64 inWG (*2)			13
0.72 inWG (*2)			14
0.80 inWG (*2)			15

Fan Coil Field Settings – FXDQ Static Pressure Change

- To change static from “Standard” to “High”, a field setting must be programmed at the remote controller
- Change Field Setting **13(23)** 5 – 01 to 02
- This static pressure change to HIGH is recommended for all FXDQ ducted applications



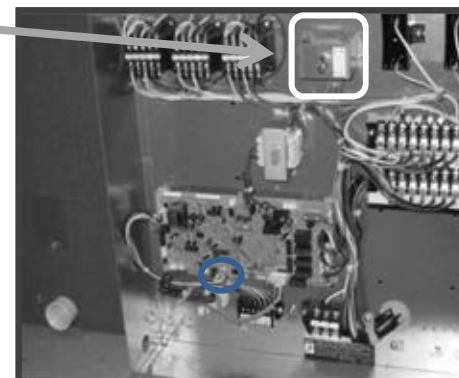
Mode No. Note 2	Setting Switch No.	Setting Contents	Second Code No.(Note 3)			
			01	02	03	04
13(23)	0	Setting of normal air flow	N	H	S	—
	1	Selection of air flow direction (Set when a blocking pad kit has been installed.)	F (4 directions)	T (3 directions)	W (2 directions)	—
	3	Operation of downward flow flap: Yes/No	Equipped	Not equipped	—	—
	4	Field set air flow position setting	Draft prevention	Standard	Ceiling Soiling prevention	—
	5	Setting of static pressure selection	Standard	High static pressure	—	—

FXMQ72/96MVJU Static Pressure Change



- The FXMQ72 and 96 fan coils have a manual toggle switch to increase static pressure from “LO” to “HI”
- The fan speed is user selectable from the Remote Controller for Lo or Hi air flow

NOTE: See Engineering Manual for fan performance specifications



Fan Coil Field Settings – FXFQ Ceiling Height Setting

- To insure proper air flow delivery, it is recommended to set the actual ceiling height field setting code
- To change setting from “Standard” to “High 1” or “High 2”, a field setting must be programmed at the remote controller
- Go to Field Setting 13(23) 0 - ##
- Second Code: 01 = Standard, 02 = High 1, 03 = High 2



		FXFQ - PVJU		MODE NO.	FIRST CODE NO.	SECOND CODE NO.
		09 · 12 · 18 · 24 · 30 type	36 · 48 type			
Ceiling height (ft.)	Standard · All round outlet	≤ 8-3/4	≤ 10-1/2	13 (23)	0	01
	High ceiling 1	8-3/4 - 10	10-1/2 - 12			02
	High ceiling 2	10 - 11-1/2	12 - 13-3/4			03

Fan Coil Field Settings – FXFQ_P & FXZQ_M7 Air Discharge Settings

- When the 4-way ceiling cassettes require changes to the discharge positions to 2-way or 3-way, a field setting change is required along with the blank-off kit
- To change setting from the factory default of 4-way discharge 13(23) 1-01, the change must be programmed at the remote controller
- Go to Field Setting 13(23) 1, and change the second code:
- Second Code: 02 = 3-way, 03 = 2-way



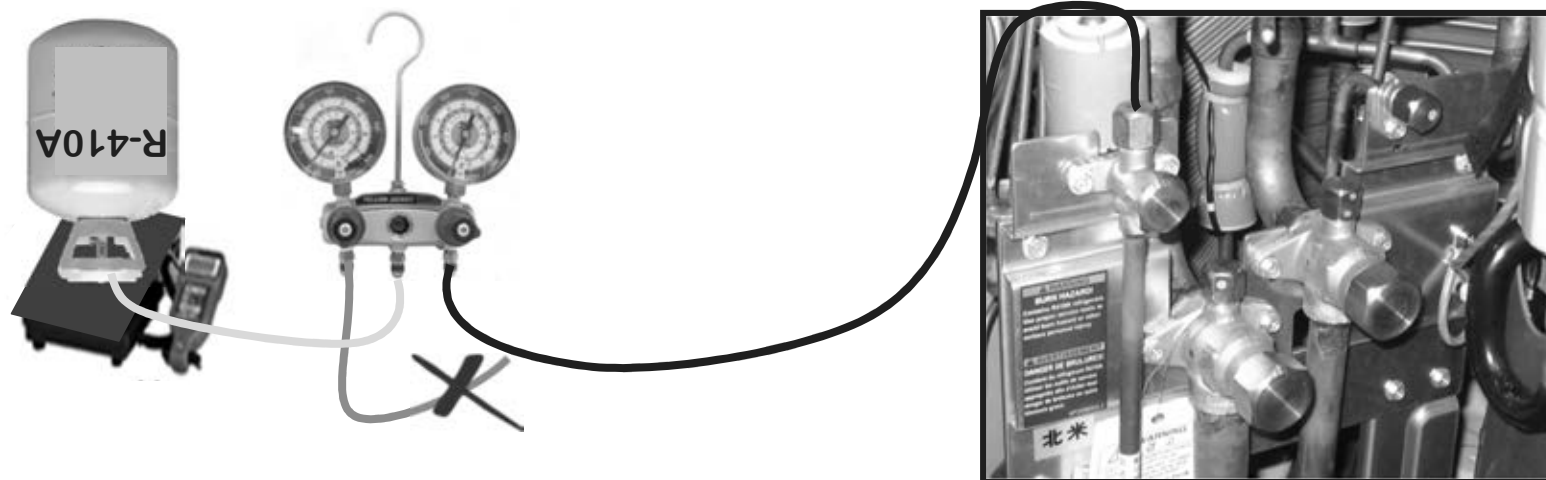
	Mode No.	First Code	Setting Contents	Second Code No.			
				01	02	03	04
	13(23)	1	Selection of airflow direction	F (4 directions)	T (3 directions)	W (2 directions)	-

System Commissioning

Manual System Refrigerant Charging - Commissioning Step #5



VRV/III Refrigerant Charging – “Additional Refrigerant Charge Mode”



- The “Additional Refrigerant Charge Mode” is used when there is not enough system vacuum from the final evacuation cycle to completely charge the system
- Close the Liquid Stop Valve – Gas Stop Valve(s) are open
- Connect the high side manifold hose to the Liquid service port, and bleed the hose
 - Low side manifold hose is not used for this procedure
 - On manifolded systems, close all liquid stop valves and connect high side hose to the Master condenser only
 - Refer to the weight of refrigerant taken on the last cycle of the triple evacuation operation
- Initiate the “Additional Refrigerant Charge Mode” at the condenser Control PCB
 - When the total calculated refrigerant charge is taken based on the scale reading, close off the High side gauge
 - Press the **“MODE”** button to terminate the operation
 - Close off the refrigerant bottle valve and remove the hose
 - Open the Liquid Stop Valve

“Additional Refrigerant Charge Mode”

- **START** - H3P solid - Normal Status
- Press and HOLD **“MODE”** button for 5 sec. until H1P is solid
- Press the **“SET”** button 20 times
LED will indicate binary number for every press of the **“SET”** button 0+16+4
- Press the **“RETURN”** button once
H7P flashing – This operation is OFF
- Press the **“SET”** button once
H6P flashing - Turn operation ON
- Press the **“RETURN”** button once
H6P solid - Lock the setting
- Press the **“RETURN”** button once to activate the setting
 - *Add Liquid Refrigerant now thru Liq. Service port, and watch scale for correct amount of refrigerant to add. When complete, close manifold valve.*
- Press the **“MODE”** button once
H3P solid - Normal mode

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	○	●	○	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	◐	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	◐	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	○	●	

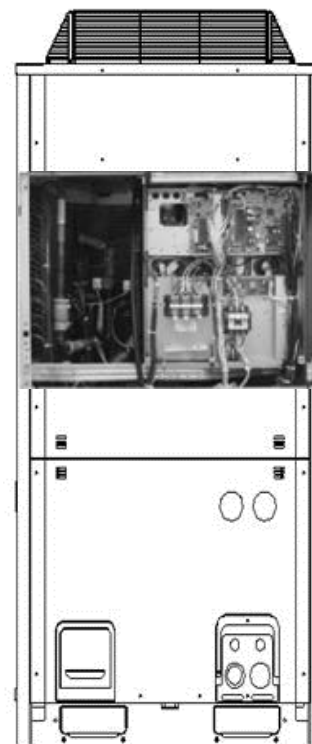
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	◐	○	○	○	○	○	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

Note: If a **“U1”** or **“U7”** error code is generated see next page

Condenser Power Supply Error

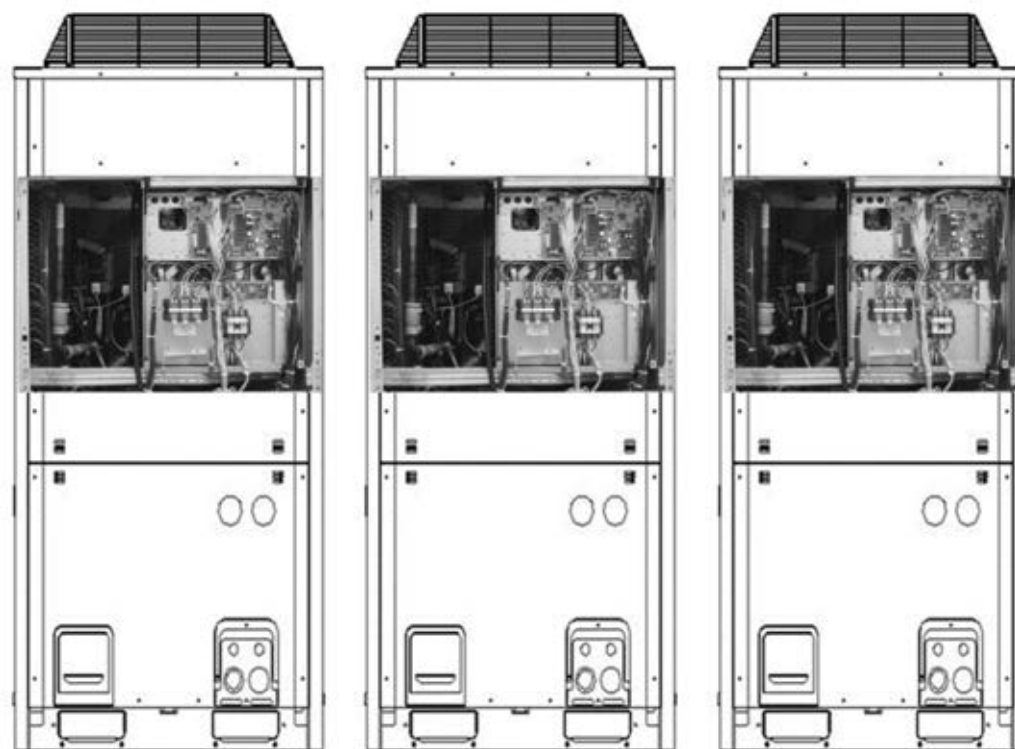
- When a Single module condenser is in “unit stop” due to a **“U1”** fault code, the main causes are Reversed Phase or Open Phase
- With a **“U1”** fault code, the compressor(s) in the condenser will not operate.
- To correct a Reversed Phase condition on a single module, reverse the wire connections on the line voltage terminals
- Restart condenser
- **“U1”** or **“U7”** error code displayed on a Manifolded system see next page



NOTE: The **“U1”** fault code refers to Power Supply Reverse Phase – Open Phase – Phase out of Balance

Verify “U1” or “U7” 3 Phase Error – Manifolded Systems

- When a Manifolded System (Dual or Triple modules) is in a “unit stop” due to a “U1” or “U7” fault code, “Monitor Mode 14” on the Master PCB can be used to determine the condenser module(s) at fault.
(refer to Service Manual SiUS341012_A, pages 329-332 for Monitor mode).
- With a “U1” or “U7” fault code, the compressors will not operate.
- Status LED on all Remote Controllers will be flashing with “U1” or “U7” error code indicated on displays
- See next pages



NOTE: The “U1” fault code refers to Power Supply Reverse Phase – Open Phase – Phase out of Balance
“U7” error code refers to communication problem between manifolded modules

Verify “U1” 3 Phase Error – Manifolded Systems Monitor “Mode 14” to determine condenser(s) with “U1” fault

- LED status on condenser power up →

Master Control PCB - A1P

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	○	○	●	●	●	●	

- Press “**MODE**” button once →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	●	●	●	●	●	●	

- Press “**SET**” button 14 times →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	●	●	○	○	○	●	

- Confirmation 1** – Press “**RETURN**” once
“First Digit” = “**U**” →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	◐	●	◐	●	●	◐	

- Confirmation 2** – Press “**SET**” once
“Second Digit” = “**1**” →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	N / A	A	●	●	●	◐	

- Confirmation 3** – Press “**SET**” button once
Display error location →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	N / A	A	●	●	●	●	

Next page

Verify “U1” 3 Phase Error – Manifolded Systems “Monitor Mode 14” to Determine Condenser(s) with Fault Continued

- **Confirmation 4** – Press “SET” button once
Display Condenser ID - **H6P + H7P**
Master/Slave1/Slave 2



H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	N / A	●	●	●	●	●	●

MASTER

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	N / A	●	●	●	●	◐	●

SLAVE 1

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	N / A	●	●	●	◐	●	●

SLAVE 2

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	N / A	●	●	●	◐	◐	●

MASTER + SLAVE 1 + SLAVE 2

Next page

Verify “U1” 3 Phase Error – Manifolded Systems Continued

- Press “**RETURN**” button once
“Monitor Mode” initial status



H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
							N/A

- Press “**MODE**” once to return to the
original power up display with error.

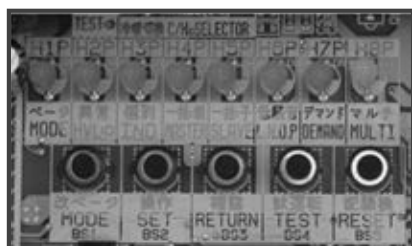


H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
							N/A

- Power down the condensers and reverse
any two line voltage terminals
- Restart all Condensers with no “**U1**” errors

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

Normal Status
Master PCB



System Commissioning

Alternate System Refrigerant Charging “Auto Charge”
Commissioning Step #A5



Auto Charge Mode

NOTE: *Auto Charge* cannot be used on systems that include the FXTQ Air Handlers or the FXMQ_MF O.A. Processors

- The *Auto Charge* feature may be used as an alternative means of system refrigerant charging, however certain restrictions and limitations apply
- During *Auto Charge* Mode, the system will automatically select Cooling or Heating mode based on the following temperatures

Outdoor Temp:	32°F DB ~ 109°F DB	}	Cool Mode
Indoor Temp:	50°F DB ~ 90°F DB		
Below 32°F OD Temp / 50°F Ind. Temp			Heat Mode

- Cool Mode: *Auto Charge* will charge the system and shut off automatically
- Heat Mode: *Auto Charge* must be manually terminated when the full calculated “Additional Refrigerant Charge” amount is weighed into the system
- LED light combinations will indicate which mode is chosen

NOTE: *Auto Charge* does not display the amount of refrigerant charged

Connection Ratio Limitations When Using Auto Charge

Connection Ratio limitations are determined by the vertical separation between the Condenser and Indoor Fan Coils and the type of connected fan coils in the system

Example: FXMQ_M with 210ft vertical separation - Condenser above Fan Coil

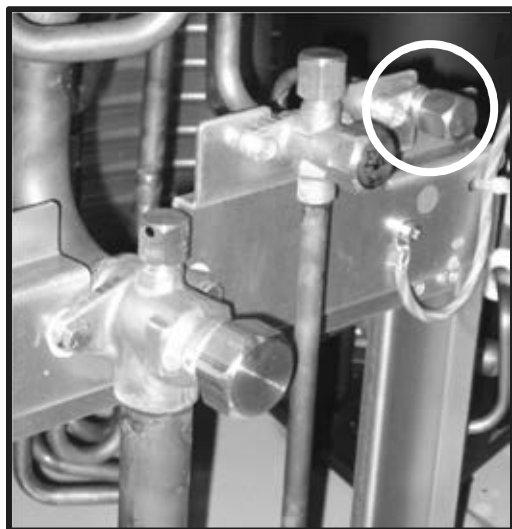
Vertical Separation Connection Ratio between Condenser and Indoor Units

CU Located Below FC											CU Located Above FC			
	0-133ft		134-200ft		201-216ft		217-266ft		267-295ft		0-164ft		165-295ft	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
FXFQ														
FXMQ_M														
FXHQ														
FXL/NQ														
FXZQ	60%	130%	80%	130%	90%	130%	100%	130%	110%	130%	60%	130%	80%	130%
FXDQ														
FXMQ_P														
FXAQ	60%	200%	80%	200%	90%	200%	100%	200%	110%	200%	60%	200%	80%	200%

Auto Charge Mode – Step 1 Charging Connection

- Connect high side gauge hose to the *Auto Charge* port (5/16") – Bleed hose
- Connect R-410A refrigerant bottle and purge the hoses
- Set refrigerant bottle on a digital scale to charge liquid only
- Install condenser front panels but leave area open to see the PCB status LEDs and access to the programming buttons

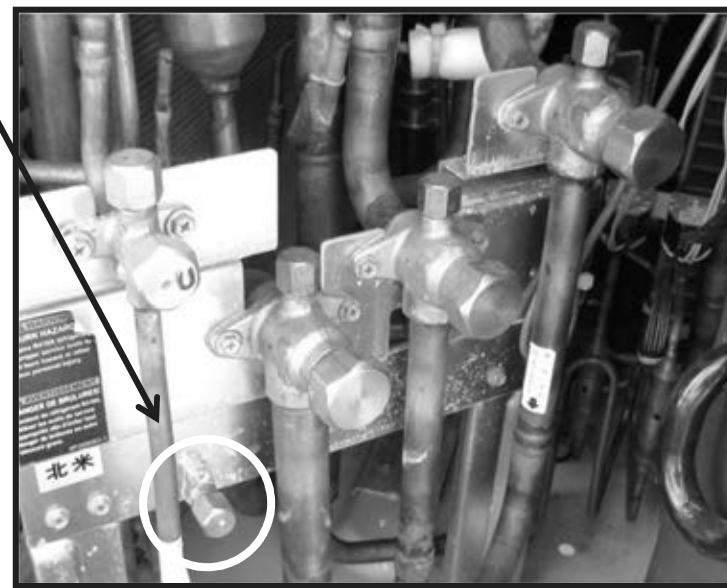
Auto Charge Port



RXYQ 2-Stop Valves



RXYQ-REYQ 3-Stop Valves



REMQ 4-Stop Valves

Auto Charge Mode – Step 2 Start Auto Charge Operation



- Verify that all Remote Controllers are in the “OFF” mode before starting Auto Charge
- To begin the *Auto Charge* operation Press the “**TEST**” button once, H1P to H7P go on solid
- Press and HOLD the “**TEST**” button for 5 sec. until LEDs change to H2P flashing

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	●

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	○	○	○	○	○	○	●

JUDGEMENT Mode

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	●	●	●	●

- The **NAV** Remote Controllers will indicate  and “Test Operation” with system status LEDs ON solid
- The **Simplified** remote Controllers will indicate the Central Control symbol  with the status LED on solid
- All function buttons are disabled



BRC1E72



BRC2A71

Auto Charge Mode – Step 3 “Judgment Mode”

- *Auto Charge* will bring on all indoor & Outdoor fans, then compressor - When Indoor and Outdoor temps are verified to be within the temperature ranges (approx 15 mins.)
- *Auto Charge* will select the **Cool** mode & automatically stop when charging is complete
- If the Indoor/Outdoor temperatures are below the stated ranges, **Heat** mode will be selected for manual charging
- When either of these LED light patterns appear, the **“TEST”** button must be pressed within 5 mins.
 - **“P2”** error code will appear on Remote Controllers if **“TEST”** button is not pressed before timeout. Operation will stop and require restarting

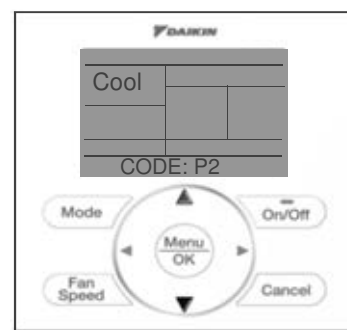
Outdoor Temp 32°F DB – 109°F DB
Indoor Temp 50°F DB – 90°F DB

COOL Mode

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

HEAT Mode

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P



Auto Charge Mode – Step 4 Charging System in Cool Mode

- When LED light pattern indicates charging in the COOL mode, press the **“TEST”** button within 5 min.
- After the **“TEST”** button is pressed, open refrigerant gauge to the *Auto Charge* port to allow liquid refrigerant to flow into the system
- When the LED light pattern changes to this sequence, a **“PE”** code will appear on the Remote Controllers. Charging is almost complete

COOL Mode

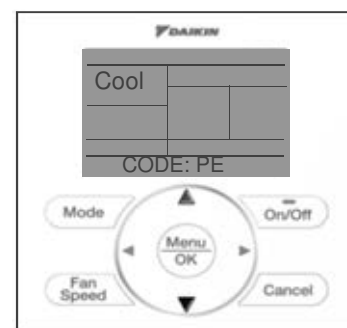
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

→

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

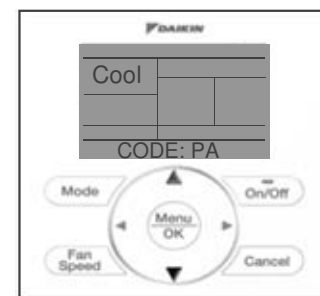
→

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

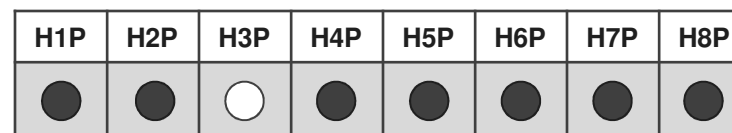
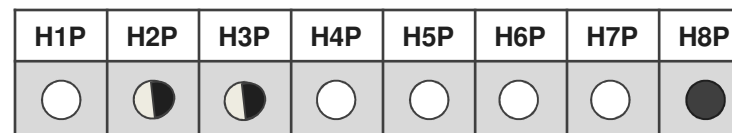


Auto Charge Mode – Step 5 Charging System in Cool Mode

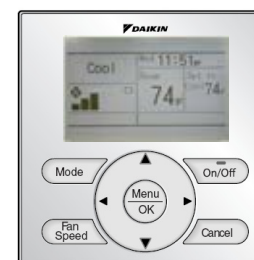
- If during the charging process the refrigerant bottle becomes empty, Auto Charge will go into a 5 min. standby to change bottles and a “PA” code will appear on the Remote Controllers
- If the 5 min time frame lapses before the bottle is replaced, Auto Charge will stop and a “P2” code will appear requiring an operation restart.



- When this LED light pattern appears, charging is complete, *Auto Charge* will stop the refrigerant flow and a “P9” code will appear on the Remote Controllers
- Press the “**MODE**” button to terminate *Auto Charge* operation



- Close off the refrigerant bottle and manifold gauge: remove charging hose
- Document the weight of refrigerant charged from the scale
- Remote Controllers are back to OFF mode



Auto Charge Mode – Step 6 Record the TOTAL Additional Charge

- When Auto Charge is complete, record the amount of the refrigerant charge from the scale including the “Additional Charge” amount in the box on the access panel label
 - It is possible for Auto Charge to draw in a slightly higher or slightly lower amount of refrigerant than the manual calculation
- Enter the system commissioning date

REQUEST FOR THE INDICATION OF SETTING CONTENTS, ADDITIONAL REFRIGERANT CHARGING AMOUNT AND INSTALLATION DATE

AFTER FILLING OUT THE BELOW, PLEASE PUT IT ON THE BACK SIDE OF FRONT PANEL

1. RECORD FOR SETTING CONTENTS
FOR THE SETTING CONTENTS OF ①~⑤
IN THE [SETTING MODE 2],
MARK ○ IN THE RIGHT TABLE.

① NIGHT - TIME LOW NOISE SETTING	OFF • LEVEL1 • LEVEL2 • LEVEL3
② EXTERNAL LOW NOISE LEVEL SETTING	LEVEL1 • LEVEL2 • LEVEL3
③ DEMAND LEVEL SETTING	LEVEL1 • LEVEL2 • LEVEL3
④ EXTERNAL LOW NOISE DEMAND SETTING	OFF • ON
⑤ HIGH STATIC PRESSURE SETTING	OFF • ON

2. RECORD FOR ADDITIONAL REFRIGERANT CHARGING AMOUNT
MAKE SURE TO RECORD THE ADDITIONAL REFRIGERANT CHARGING AMOUNT.
(IF DO NOT USE AUTOMATIC REFRIGERANT CHARGING, CALCULATE AND CHARGE THE ADDITIONAL REFRIGERANT CHARGING AMOUNT FOLLOWING AS SHOWN ON THE BELOW.)

ADDITIONAL CHARGING AMOUNT

36.3 lb

(ROUND OFF TO ONE DECIMAL PLACE.)

LIQUID PIPE SIZE(in)	REFRIGERANT AMOUNT PER 1ft(lb/ft)	LENGTH OF LIQUID PIPE(ft)	SUB TOTAL
1/8	0.249	×	=
3/8	0.175	×	=
1/2	0.121	×	52 = 6.29
3/4	0.081	×	78 = 6.31
1	0.040	×	173 = 6.92
1 1/4	0.015	×	254 = 3.81

TOTAL

23.33 lb

+

MODEL NAME	THE AMOUNT OF REFRIGERANT
RXYQ96, 120, 216, 240, 336, 360P	0 lb
RXYQ72, 168, 192, 264, 288, 312P	1.1 lb
RXYQ144PBYD	2.2 lb
RXYQ144PBTJ	7.9 lb

+

INDOOR CONNECTION CAPACITY	MODEL NAME
	RXYQ72 ~312P RXYQ336 • 360P
MORE THAN 100% 120% OR LESS	1.1 lb
MORE THAN 120% 130% OR LESS	1.1 lb 2.2 lb

3. RECORD OF INSTALLATION DATE

DA 29 • MO 07 • YR 2011

Auto Charge COOL Mode Status Codes

PE	Charging is almost complete. Get ready to close refrigeration gauges.	
PA	The refrigeration tank is empty. Close refrigeration gauges and replace with full tank. Once tank is replaced and hose is purged, open refrigeration gauges again.	
PH	Fan does not stop running and the outdoor unit does not stop running.	
P8	Close refrigeration gauges and restart the Auto Charge procedure.	
P2	Operation is interrupted. Close refrigeration gauges and check below items. <ul style="list-style-type: none">• Check to see if all stop valves are open.• Check that the refrigerant tank is connected and open.• Check indoor units for blockage of air inlet and outlet.	After correcting the abnormality, restart the Auto Charge from the beginning.
P9	Charging is complete. Push “MODE” button (BS1). Close refrigeration gauges and disconnect tank from system.	

Auto Charge –Charging System in Heat Mode

- When LED light pattern indicates charging in the HEAT mode H1P-H2P Flashing - Press the **“TEST”** button within 5 min.
- After the **“TEST”** button is pressed, open refrigerant gauge to the *Auto Charge* port to allow liquid refrigerant to flow into the system
- Manually weigh in the balance of the calculated “Additional Refrigerant Charge”
- When the total amount of refrigerant is charged, close off the manifold gauge and refrigerant bottle – Remove hose
- Press the **“RETURN”** button to stop *Auto Charge*

HEAT Mode

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

→

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

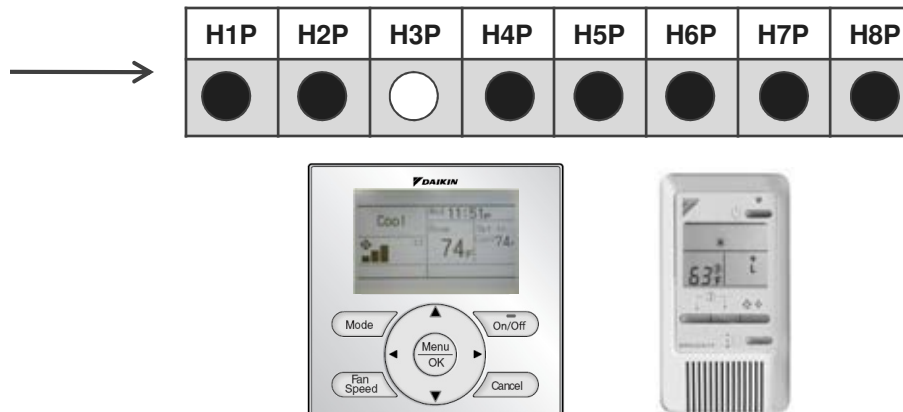
→

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P

Auto Charge Mode –Charging System in HEAT Mode

- Press the “**MODE**” button to terminate *Auto Charge* Heat operation

- Close off the refrigerant bottle and manifold/d gauge: remove charging hose
- Document the weight of refrigerant charged from the scale
- The Remote Controllers return to normal display and OFF



Heat Mode Status Codes

P8	Close refrigeration gauges and push “TEST” button (BS4) once. Restart the Auto Charge procedure.
P2	Operation is interrupted. Close refrigeration gauges and check below items. <ul style="list-style-type: none"> • Check to see if all stop valves are open. • Check that the refrigerant tank is connected and open. • Check indoor units for blockage of air inlet and outlet.

System Commissioning

Check Operation Mode - Commissioning Step #6



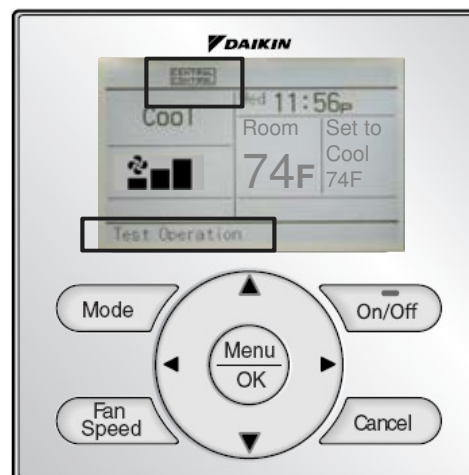
Check Operation Mode

- Verify that all Remote Controllers are “OFF” before starting the Check Operation mode or “U3” error will occur
- To start “Check Operation Mode” Press and HOLD the “TEST” button for 5 sec. until LED light sequence changes to H2P flashing & H7P solid

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	●	●	○	

- Check Operation will take approximately 15 to 40 mins. to complete depending on the size of the system and number of indoor units
- Remote Controllers will indicate “Central Control” with Status LED’s on solid
- Check Operation always runs in the COOL mode



Check Operation Mode Sequence

- **START** - Normal Status
Press and HOLD “**TEST**” button
5 sec.
- **STEP 1** - Pressure Equalization
Time: 10 sec. to 10 mins.
- **STEP 2** - Cooling Start Control
Time: 3 – 5 mins.
- **STEP 3** - Stability waiting operation
Time: 10 mins.
- **STEP 4 to 6** - Judgement Function
 - Stop valve close check
 - Wrong Wiring check
 - Refrigerant over-charge check
 - Piping Length Check
 Time: 3 mins.

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	●	●	○	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	●	○	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	●	○	○	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	○	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	○	●	○	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	○	○	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	●	○	○	○	

NEXT PAGE

Check Operation Mode Sequence Continued

- **STEP 7** - Pump down residual operation
Time: 10 sec. – 5 mins.



H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	○	●	●	●	

- **STEP 8** - Standby for restarting
Time: 5 mins.



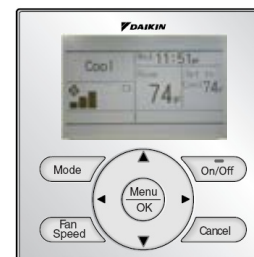
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	◐	●	○	●	●	○	

- Check Operation Completed
Return to Normal status



H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

- Remote Controllers revert back to OFF mode with normal display



Listing of potential error codes which could occur during Check Operation Mode

<u>Error Code</u>	<u>Installation Error</u>	<u>Remedial Action</u>
E3, E4, F3, F6, UF	The stop valve of an outside unit is left closed.	Open stop valve.
U1 (see pages 84 ~85 for additional help)	The phases of the power to the outside unit(s) are reversed.	Exchange two of the three phases (L1, L2, L3). Swap L2 & L3
U1, U4, LC	No power is supplied to an outdoor , BS or indoor unit (including phase interruption).	Check if the power wiring for the outside , BS or inside units are connected correctly.
UF	There is a conflict on the connection of transmission wiring in the system.	Check if the refrigerant piping line and the unit transmission wiring are consistent with each other.
E3, F6, UF	Refrigerant overcharge.	Recalculate the required amount of refrigerant from piping length and correct the refrigerant charge level by refrigerant recovery machine.
E4, F3	Insufficient refrigerant.	Check to see if additional refrigerant charge has been finished correctly. Recalculate the required amount of refrigerant from piping length and then add the adequate amount of refrigerant.
U3	The check operation has not been preformed.	Perform the check operation.
U7, U4, UF, UH	Field wiring is connected to Q1-Q2 terminals on outside unit PC-board when the system is one outdoor system.	Remove the wire from the Q1-Q2 terminals.

System Commissioning

Configure the Remote Controller *Changeover Master* - Step #7
Additional Field Settings - Step #8

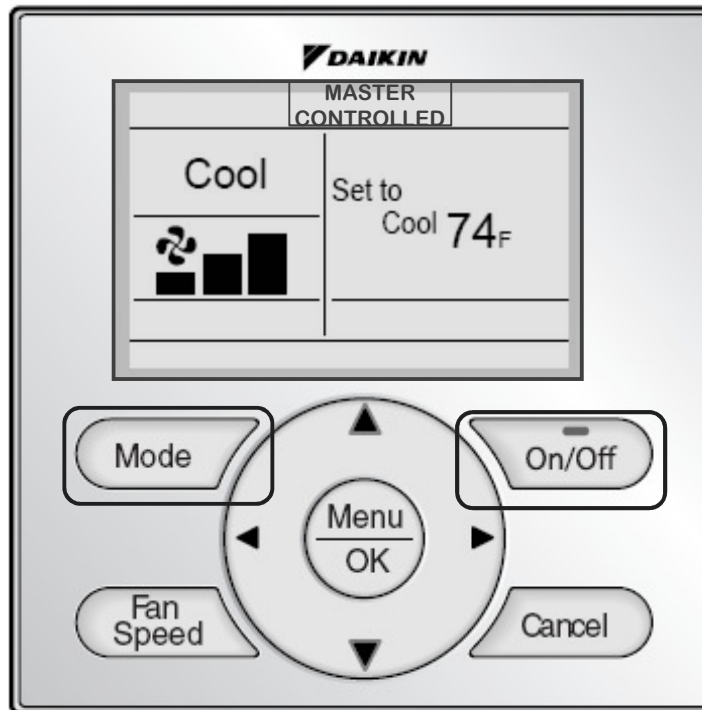


Configure Remote Controller *Changeover Master* for Heat Pump Applications

- A designated Remote Controller must be configured as the Master in a Heat Pump system, or Heat Recovery where a Branch Selector Box is connected to multiple fan coils with individual Remote Controllers.
- To configure a **BRC1E72** (NAV Remote) as a Master
 - Press any button to bring on the display back light
 - The **MASTER CONTROLLED** icon will be flashing on all NAV remote controllers
 - Press the **“Mode”** button once and the Icon will disappear on the Master
 - All other NAV Remote Controllers (slaves) will display **MASTER CONTROLLED** solid
- To configure a **BRC2A71** (Simplified)
 - The Master Controlled **人** symbol will be flashing (“Changeover Under Control”) on all Simplified RC’s
 - Press the **“Mode”** button once and the symbol will disappear on the Master
 - All other “Simplified” Slave Remote Controllers will display **人** solid
- To change the Master, press & hold the **“Mode”** button for 5 sec. on the Master RC
All RCs go into Master configuration mode

MASTER

BRC1E72 NAV Remote



MASTER

BRC2A71 Simplified



Configure Wireless Remote Controller *Changeover Master*

- On power up of indoor units, all “Master Controlled” icons will be flashing on wired controllers ONLY. Wireless controllers will NOT display icon
- Go to the wireless controller you want set as the Master and while pointing the wireless controller at the fan coil
- Press and hold the “**MODE**” button for approx 4 seconds . You will hear “BEEP BEEP” then another “BEEP BEEP”
- To change the Master to different zone, go to the Master wireless controller and hold “**MODE**” button for 4 seconds. Listen for the “BEEP BEEP”
- Go to another remote and press “**MODE**” button



Wireless Hand-Held Remote Controller



Additional Field Settings for Commissioning

- Any remaining system field settings can now be programmed
- Field Settings are listed in the Indoor Unit Installation Manuals and the VRVIII Service Manual
- Indoor Units (Suggested Examples)
 - T1 T2 Forced OFF configurations – ON/OFF – External Protection Device N.C.
 - Power Louvers Operation (see fan coil Installation Manual)
 - Remote Controller “Main-Sub” Configuration (see controller Installation Manual)
 - NAV remote sensor priority
 - Remote Sensor priority
 - KRP1C Status Output
 - Fan “Auto” Configuration (“P” series fan coils only)
 - Set Point ranges
 - Air Filter Alert

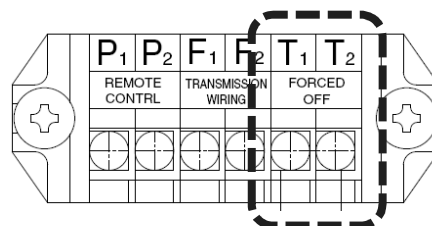
Fan Coil Field Settings – T1 T2 Forced Off – External Protection Device

- Any fan coils utilizing the optional condensate pumps must have the “Forced Off” field setting changed to accommodate the safety float switch operation (External Protection Device N.C.)
 - T1 T2 Forced Off has a factory default of N.O. Code 01
 - NOTE: When the float switch is connected to T1 T2, the Remote Controller will display  or  and cannot be turned on manually unless the field setting is changed to 03.
- Change the field setting to **12(22) 1-03** for condensate float switch operation: N.C. with automatic reset

EXAMPLE: Field Setting for optional condensate pump float switch connected to fan coil T1 T2 Forced Off

Mode No. Note 2	First Code No.	Setting Contents	Second Code No.(Note 3)				Details No
			01	02	03	04	
	0	Optional accessories output selection (field selection of output for adaptor for wiring)	Indoor unit turned ON by thermostat	—	Operation output	Malfunction output	(5)
12 (22)	1	ON/OFF input from outside (Set when ON/OFF is to be controlled from outside.)	Forced OFF	ON/OFF control	External protection device input	—	(6)

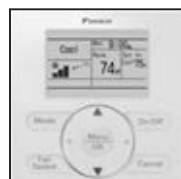
Indoor Unit Field Settings – T1 T2 Forced Off



- Forced Off is programmed for N.O. (Code 01) Manual Reset (Factory Setting)
 - Field Setting will reprogram dry contact configuration and restart sequence
 - Code 02 - ON-OFF operation (Start/Stop)
 - Code 03 – N.C. External Field Protection Device Auto Reset (Optional Condensate Pump Float Switch)

External Input	Mode No.	1 st Code No.	2 nd Code No.
Forced Off	12(22)	1	01 – Default Manual Reset
ON/OFF Op	12(22)	1	02
Ext Protection Device	12(22)	1	03 Auto Reset

Indoor Unit Field Settings – Space Sensor Priority



Space Sensor priority can be changed for specific applications

- Return Air thermistor disabled (Direct fresh air / High ceiling return)
- FXTQ Air handler with BRC2A71 Simplified Remote Controller
- BRC1E72 Remote Controller Sensor Priority
- No Remote Controller used

Mode No. (Note 1)	First Code No.	Description	Second Code No. (Note 2) (Cells in bold are factory default settings)			
			01	02	03	04
10(20)	2	Priority of thermistor sensors for space temperature control	The return air thermistor is primary and the remote controller thermistor is secondary.	Only the return air thermistor will be utilized.	Only the remote controller thermistor will be utilized.	--

Indoor Unit Field Settings – Space Sensor Priority



Space Sensor priority can be changed for specific applications

- Return Air thermistor disabled (Direct fresh air / High ceiling return)
- FXTQ Air handler with BRC2A71 Simplified Remote Controller
- BRC1E72 Remote Controller Sensor Priority
- No Remote Controller used

Mode No. (Note 1)	First Code No.	Description	(Cells in bold are factory default settings)			
			01	02	03	04
10(20)	2	Priority of thermistor sensors for space temperature control	The return air thermistor is primary and the remote controller thermistor is secondary	Only the return air thermistor will be utilized.	Only the remote controller thermistor will be utilized.	--

Indoor Unit Field Settings – FXMQ_MF O.A. Processor Discharge Temperature Setting

- A dedicated BRC1E72 Remote Controller is required to control the O.A. Processor Unit
 - A field Setting programs the operating discharge temperature for Heat and Cool
 - Mode No. 14 (24)
 - First Code No. 3 – Cooling 4 – Heating
 - Second Code No. Heat Discharge Temp
 - Cool Discharge Temp



NOTE: The discharge air temperature is not displayed on the Remote Controller

		for cooling	for heating
Mode No.		14 (24)	14 (24)
FIRST CODE NO.		3	4
SECOND CODE NO.	01	55°F	64°F
	02	57°F	66°F
	03	59°F	68°F
	04	61°F	70°F
	05	63°F	72°F
	06	64°F	73°F
	07	66°F	75°F
	08	68°F	77°F
	09	70°F	79°F
	10	72°F	81°F
	11	73°F	82°F
	12	75°F	84°F
	13	77°F	86°F

Indoor Unit Field Settings – VRV Fan “AUTO” Configuration

- The VRV fan coils operate with constant fan operation in the Thermo-off mode (zone satisfied)
 - Heat mode fan speed operates in LL speed
 - Cool mode fan speed operates on user selected speed: LL – H – HH
- Fan operation in the Thermo-off mode may be reprogrammed by changing the field setting for Heat or Cool modes

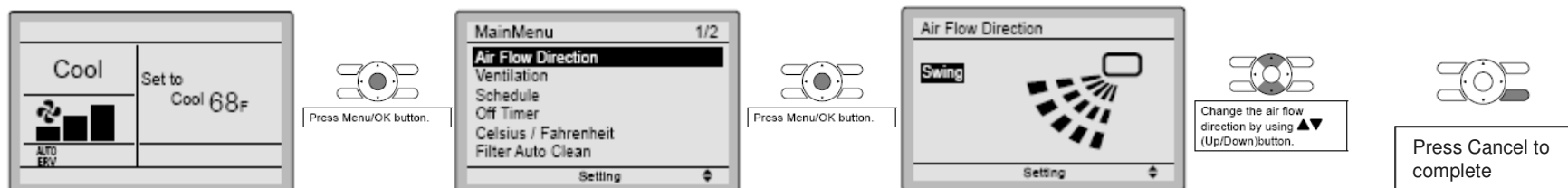
Fan Auto Configuration	Fan Speed LL	Fan Speed User Set	Fan Speed OFF
Fan Speed Heat Thermo-off	12(22)-3-01 Default	12(22)-3-02	12(22)-3-03
Fan Speed Cool Thermo-off	12(22)-6-01	12(22)-6-02 Default	12(22)-6-03

NOTE: Fan Auto Configuration is not available for the FXFQ_MVJU or FXHQ_MVJU fan coils

Indoor Unit Field Settings – Power Louver Operation



- The VRV fan coils with power louvers (flaps) can be programmed
 - Power Louver settings are programmed from the BRC1E72 Navigation Remote Controller only
 - Factory set operation: louvers oscillate up and down automatically when the fan coil is ON
 - From the Main Menu on the BRC1E72 Remote Controller, the louvers can be programmed to a selected angle when the fan coil is ON



System Commissioning

Selected Field Settings - Condensers



Selected Condenser Field Settings

- If during the course of system installation before commissioning, line voltage power was applied to the Fan Coils and Branch Selector Boxes, the *electronic expansion valves* will close. This will impede the pressure testing and evacuation procedures required to prepare the system for commissioning. Under these conditions, a service setting at the master condenser PCB for **“Refrigerant Recovery & Evacuation Mode”** can be used to re-open all of the system *electronic expansion valves*.
 - Note: For “Refrigerant Recovery & Evacuation” mode to operate correctly, all indoor units (BS Boxes & Fan Coil units) must communicate with the DIII-Net control system. Follow Commissioning Steps 1, 2 & 3.
- When a system is to be manually charged with refrigerant, a service setting at the master condenser PCB for **“Additional Refrigerant Charge Mode”** can be used to manually draw in liquid refrigerant using the compressor.
 - All Remote Controllers are Off. The Liquid Stop Valve(s) must be closed, leaving the Gas Stop Valve(s) Open. Liquid refrigerant will be manually charged through the Liquid Service Port on the indoor unit side of the refrigerant circuit.
- Use “Monitor Mode 14” to display all error codes related to the system Condenser(s)

“Refrigerant Recovery & Evacuation Mode”

- **START** - Normal Status →
- Press and HOLD “**MODE**” button 5 sec.
(Service Mode 2) H1P Solid →
- Press the “**SET**” button 21 times
 - LED will indicate binary number for every press of the “**SET**” button 16+4+1 →
- Press the “**RETURN**” button once →
- Press the “**SET**” button once to turn ON →
- Press the “**RETURN**” button once to lock on →
- Press the “**RETURN**” button once to activate the setting →
- **Pressurize, Evacuate, or Recover now**
- Press the “**MODE**” button to return to Normal mode →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	●	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	○	●	○	●	○	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	◐	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	◐	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	○	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

“Additional Refrigerant Charge Mode”

- START - Normal Status →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

- Press and HOLD “**MODE**” button (Service Mode 2) H1P Solid →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	●	

- Press the “**SET**” button 20 times
 - LED will indicate binary number for every press of the “SET” button
0+16+4

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	○	●	○	●	●	

- Press the “**RETURN**” button once →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	●	◐	

- Press the “**SET**” button once to turn ON →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	◐	●	

- Press the “**RETURN**” button once to lock on →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	●	●	●	●	○	●	

- Press the “**RETURN**” button once to activate the setting →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
○	◐	○	○	○	○	○	

- Close Liq. Stop valve – HP/LP Gas stop valve(s) open. Add Liquid Refrigerant now thru Liq. Service port

- Press the “**MODE**” button to return to Normal mode →

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

Manifolded Systems “Monitor Mode 14” to determine Condenser(s) with error code

- LED status on condenser
- Press “MODE” button once
- Press “SET” button 14 times
- Confirmation 1 – Press “RETURN” once
“First Digit” SEE Page 90
- Confirmation 2 – Press “SET” once
“Second Digit” SEE Page 91

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	●	○	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	●	●	●	●	●	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
◐	●	●	◐	◐	◐	●	

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
See Next Page							

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
See Next Page							

NOTE: This must be used along with the VRVIII Service Manual so as to accurately determine and interpret the error code. See pgs. 329 - 332

Monitor Mode 1 LED Sequence to Error Code “Confirmation 1”- “RETURN” = 1st Digit of Error Code

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	●	◐	◐		= “E”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	◐	●	●		= “H”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	◐	●	◐		= “F”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	◐	◐	●		= “J”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	◐	◐	◐		= “L”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	●	●	●		= “P”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	●	●	◐		= “U”

= 1st DIGIT of Error Code

Continue to next page for 2nd Digit of Error Code

Monitor Mode 1 LED Sequence to Error Code “Confirmation 2” - “SET” = 2nd Digit of Error Code

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	●	●	◐		= “1”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	●	◐	●		= “2”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	●	◐	◐		= “3”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	◐	●	●		= “4”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	◐	●	◐		= “5”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	◐	◐	●		= “6”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			●	◐	◐	◐		= “7”

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	●	●	●		= “8”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	●	●	◐		= “9”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	●	◐	●		= “A”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	◐	●	●		= “C”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	◐	◐	◐		= “F”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	●	◐	◐		= “H”
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	
			◐	◐	●	◐		= “J”

Manifolded Systems Monitor Mode 1 to Determine Condenser(s) with Fault Continued

- Confirmation 4 – Press “SET” button once
Display Condenser ID - H6P + H7P
Master/Slave1/Slave 2



H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	N / A	●	●	●	●	●	

MASTER

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	N / A	●	●	●	●	◐	

SLAVE 1

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	N / A	●	●	●	◐	●	

SLAVE 2








H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
●	N / A	●	●	●	◐	◐	

MASTER + SLAVE 1 + SLAVE 2








Next page

Manifolded Systems “Monitor Mode 1” to Determine Condenser(s) with Error Code Continued

- Press “RETURN” button once
“Monitor Mode” initial status

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
							

- Press “MODE” to return to the original power up display with error.
- Power down the condensers and correct the error issues
- Restart all Condensers

H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P
							

Commissioning Completion

- Before any VRV installation is considered complete, the VRV^{III} system should be operated in the cool mode and the heat mode to insure proper operation, depending on the outside ambient temperature limitations.
- On Heat Recovery systems, every zone should be cycled to verify that the Branch Selector Boxes are functioning properly.
- Centralized control systems should be configured and programmed after the VRV^{III} system or systems are fully operational.
- Copies of the VRV IOM's should be kept by the installing contractor and on the job site with the end user for future reference.

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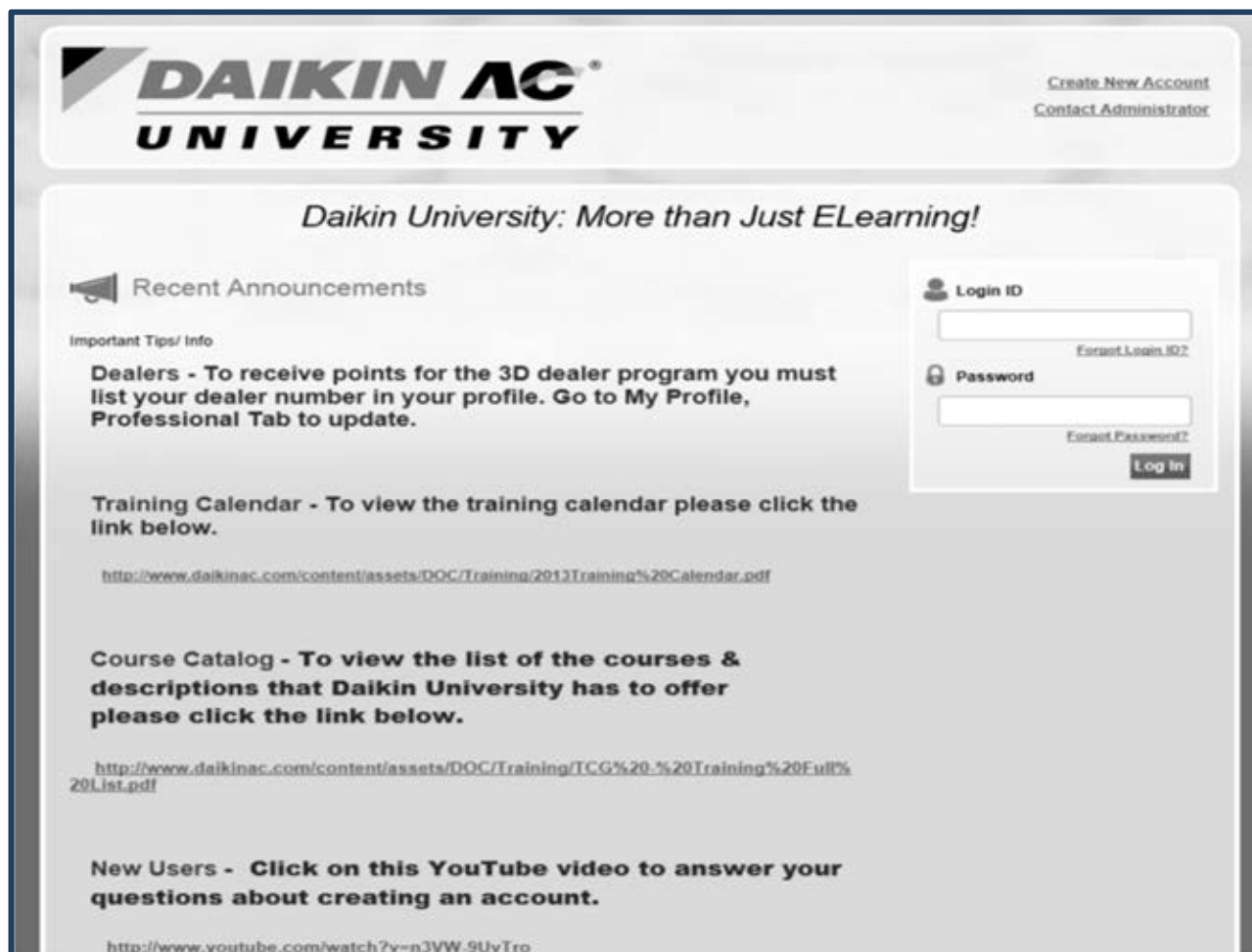
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Important Tips/ Info

Dealers - To receive points for the 3D dealer program you must list your dealer number in your profile. Go to My Profile, Professional Tab to update.

Training Calendar - To view the training calendar please click the link below.


<http://www.daikinac.com/content/assets/DOC/Training/2012Training%20Calendar.pdf>

Course Catalog - To view the list of the courses & descriptions that Daikin University has to offer please click the link below.


<http://www.daikinac.com/content/assets/DOC/Training/TCG%20.%20Training%20Full%20List.pdf>

New Users - Click on this YouTube video to answer your questions about creating an account.

<http://www.youtube.com/watch?v=n3VW-9UyTro>

 Login ID

[Forgot Login ID?](#)

 Password

[Forgot Password?](#)

Log In



U N I V E R S I T Y

For more detailed information, refer to the Daikin *VRV* Service, Installation and Engineering Manuals. These materials are available as electronic copies through www.daikinac.com , TRL and *Daikin* eQuip App.

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