INSTALLATION INSTRUCTIONS

HWC-7-11-**P, HWC-7-12-**P

MAGIC-PAK CHASSIS FOR R-410A CABINETS

This manual must be left with the homeowner for future reference.

This manual is for the replacement of EXISTING R-410A cabinet with a R-454B chassis. Reference the rating plate of the equipment being replaced. If the rating plate states R-410A, please proceed forward. If the rating plate states R-454B, please follow the included Installation Manual 508684-01

⚠

This is a safety alert symbol and should never be ignored. When you see this symbol on labels or in manuals, be alert to the potential for personal injury or death.

⚠ WARNING

This chassis shall be installed by a qualified agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, electric shock, fire, or explosion may result, which may cause property damage, personal injury, or death. The qualified service agency performing this work assumes responsibility for properly installing this chassis.

⚠ WARNING

Risk of electrical shock. Disconnect all remote power supplies before installing or servicing any portion of the system. Failure to disconnect power supplies can result in property damage, personal injury, or death.

⚠ WARNING

Consult current HWC specifications to ensure wire and breaker are sized appropriately.

⚠ WARNING

This Chassis is designed for, and should only be used in, Magic-Pak® HWC models of similar cooling capacity. Any other use could result in actions that might cause property damage, personal injury, or death

⚠ WARNING

Turn off gas to the appliance before performing any service. Failure to disconnect gas supply can result in property damage, personal injury, or death.

⚠ WARNING

Auxiliary devices which may be a potential ignition source shall not be installed in the duct work. Examples of such potential ignition sources are hot surfaces with a temperature exceeding 1,292 F (700°C) and electric switching devices.

Manufactured By
Allied Air Enterprises LLC
215 Metropolitan Drive
West Columbia, SC 29170

(P) 508725-01

Save these instructions for future reference

Quantity	Part
1	Safety Label 107891-01
1	Safety Label 107894-01
1	Safety Label 107659-01
1	Safety Label 107660-01
1	Safety Label 107661-01
1	Safety Label 108173-01
1	Control Board Adapter Harness (104495-04)
1	Low Voltage Adapter Harness (104495-06)
1	Low Voltage Adapter Harness (104495-08)
1	Wiring Diagram Harness (104495-08)
1	Wiring Diagram Label (537811-02)
1	2.5 Ton 2-Stage Adapter (104495-10)
1	2.5 Ton 2-Stage Adapter (104495-11)
1	Installation Instructions

⚠ WARNING

For appliances using A2L refrigerants connected via an air duct system to one or more rooms, only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork.

⚠ WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance, or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.

⚠ WARNING

For duct connected appliances, false ceilings or drop ceilings may be used as a return air plenum if a REFRIGERANT DETECTION SYSTEM is provided in the appliance and any external connections are also provided with a sensor immediately below the return air plenum duct joint.

⚠ WARNING

If this appliance is conditioning a space with an area smaller than TA_{min} or stored in a space with an area smaller than A_{min} as defined by this instruction, then that space must be without continuously operating open flames (e.g. an operating gas appliance) or other potential ignition sources (e.g. an operating electric heater or similar hot surface). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest system.

NOTE – R454B is an A2L refrigerant. The system installation must meet the following parameters based upon total refrigerant charge (line set included). TAmin (Total minimum conditioned area) is the minimum allowable conditioned area based upon the total system charge at sea level. Values must be multiplied by altitude adjustment factor at installed altitude.

See tables below

TAmin Table

Charge (lb)	<4	4	6	8	10
Charge (kg)	<1.8	1.8	2.7	3.6	4.5
Minimum Conditioned Area (ft2)	N/A*	60	90	120	150
Minimum Conditioned Area (m2)	N/A*	5.6	8.4	11.2	14.0

***NOTE** – Multiply values in TAmin table by the Altitude Adjustment Factors to correct TAmin based on installed altitude.*

Altitude Adjustment Factor

Altitude (m)	0	200	400	600	800	1000	1200	1400	1600
Altitude (ft)	0	660	1310	1970	2620	3280	3940	4590	5250
Adj. Factor	1	1	1	1	1.02	1.05	1.04	1.1	1.12
Altitude (m)	1600	1800	2000	2200	2400	2600	2800	3000	3200
Altitude (ft)	5250	5910	6560	7220	7870	8530	9190	9840	10500
Adj. Factor	1.12	1.15	1.18	1.21	1.25	1.28	1.32	1.36	1.4

IMPORTANT

⚠ WARNING

This manual provides important instructions to replace a R-410A chassis with a new R-454B chassis. R-454B is a low flammability refrigerant. Failure to follow these instructions may cause an adverse thermal event.

To install this chassis into a R-410A cabinet, the installer will be required to have a video conference with an agency representative to validate the installation and that all proper safety precautions have been followed. There will be some questions that will be asked and required to be answered before a video chat will occur for validation. This validation process will occur after the installation of the chassis, but prior to unit startup. This installation must be verified upon completion of the replacement by following the Magic-Pak Chassis Retrofit Virtual Validation instructions at the end of this manual. Failure to follow this installation manual in its entirety will void all warranty claims with the unit.

The installer will be required to provide the following information:

- Installation address

- Serial number of the new chassis

- Serial number of the cabinet

- If the system is ducted (Note: the unit must be ducted to replace the chassis.).

- If an optional refrigerant detection system in installed.

- If the system is installed in a free air return application (Note: RDS systems are required for free air return applications).

- The installer will need to be able to show the markings on the unit, and the connection points of the installed chassis.

• Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

• The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the detection equipment being used is suitable for use with all applicable refrigerants, i. e. non-sparking, adequately sealed or intrinsically safe.

• If any hot work is to be conducted on the refrigerating equipment or any associated parts, the appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

• No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

• Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out.

• Pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards

• All field joints shall be accessible for inspection prior to being covered or enclosed

• Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance. The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS as applicable:

1. The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
2. The ventilation machinery and outlets are operating adequately and are not obstructed.
3. If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
4. Markings on the equipment should be visible and legible. Markings and signs that are illegible shall be corrected.
5. Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

    • For systems containing refrigerant, all repair and maintenance to electrical components shall include initial safety checks and component inspection procedures such as that capacitors are discharged in a safe manner to avoid possibility of sparking, that no live electrical components and wiring are exposed while charging, recovering, or purging the system, and that there is continuity of earth bonding. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used that is reported to the owner of the equipment, so all parties are advised.

NOTE *–Sealed electrical components shall be replaced, not repaired*.

NOTE *– Intrinsically safe components must be replaced, not repaired.*

NOTE *– All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out with work in confined spaces being avoided.*

• Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant. A halide torch (or any other detector using a naked flame) shall not be used. The following detection methods are deemed acceptable for all refrigerant systems. Electronic detectors may be used to detect refrigerant, but in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and that 12.5 % refrigerant is confirmed. Detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work. In the event refrigerant is detected by sensor, all naked flames shall be removed/ extinguished. If refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from refrigerant detection.

• When breaking into the refrigerant circuit to make repairs – or to any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed and, since flammability is a consideration, procedures such as safely removing refrigerant following local and national regulations, purging the circuit with inert gas (optional for A2L), evacuating (optional for A2L), or opening the circuit by cutting or brazing be adhered to. The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to be able to perform the required work. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and working area is well ventilated.

General Instructions

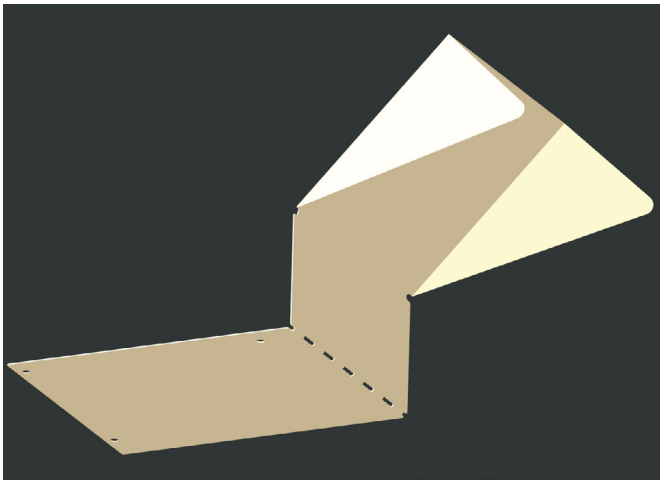
This chassis is the self-contained cooling section of an HWC unit. It is designed to be assembled into an HWC cabinet, and is not intended for any other use or application.

This chassis is compatible with the following legacy models: HWC8**09P30, HWC9**11P12, HWC9***11P18, HWC9**11P24,HWC9**11P30,HWC8**12P**,HWC8**13P**, HWC9**12P**, HWC9 **13P**, **HWC4-09-121, **HWC4-09-181, **HWC4-09-241, or **HWC4-09-301.

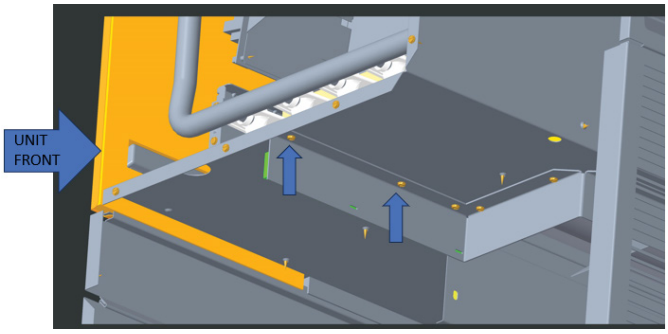
If any damage to the contents is found at the time of delivery, proper notation should be made on the carrier's freight bill. Damage claims should be filed with the carrier at once. Claims of shortage should be filed with the manufacturer within 5 days.

Removing the Old Chassis

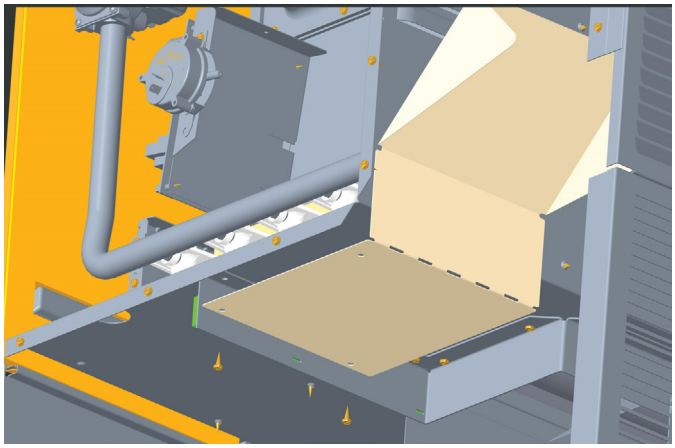
1. Make sure that the electrical supply is disconnected and the gas supply is turned off.
2. Remove the filter access panel and center rear panel.
3. Disconnect the wire harness plug and remove the line voltage wires from the contactor.
4. Disconnect the condensate drain tube from drain pan.
5. Remove the blower close-off panel and remaining screws retaining the chassis in the cabinet.
6. Slide out the existing chassis.
7. Prepare the refrigerant deflector by forming the hand as shown below



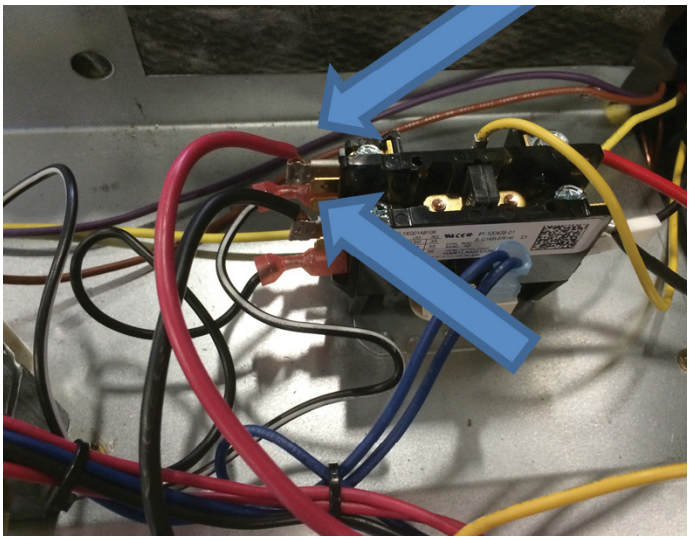
8. Remove the (2) right most screws behind the chassis top bracket on the underside of the control panel.



9. Install the deflector bracket into the cabinet using the (2) screws removed during the previous step.

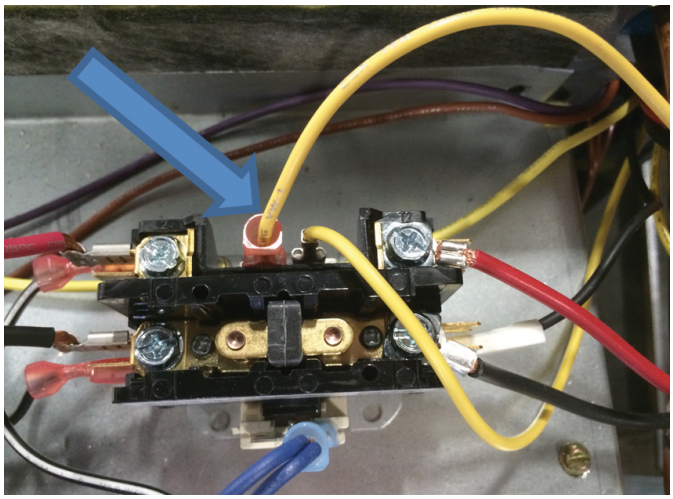


10. Slide in new HWC chassis and attach chassis in reverse order of the removal.
11. Attach black line voltage wires to L1 and L2 of contactor.

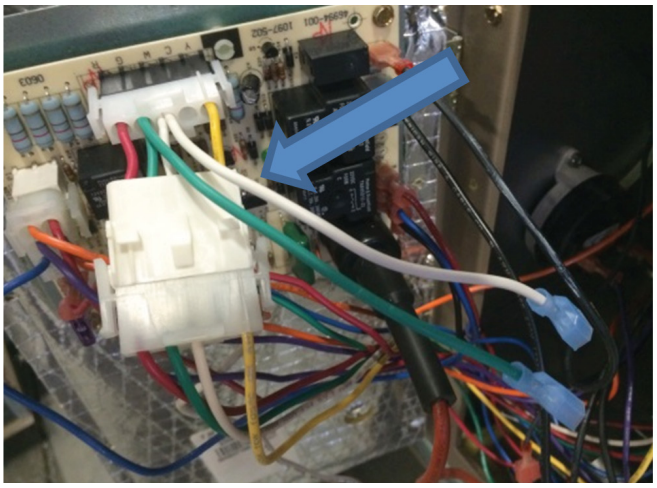


Note: For HWC8N**12P**, HWC8N**13P**, HWC9N**12P**, & HWC9N**13P** units, skip to step 15. Proceed for all other legacy models.

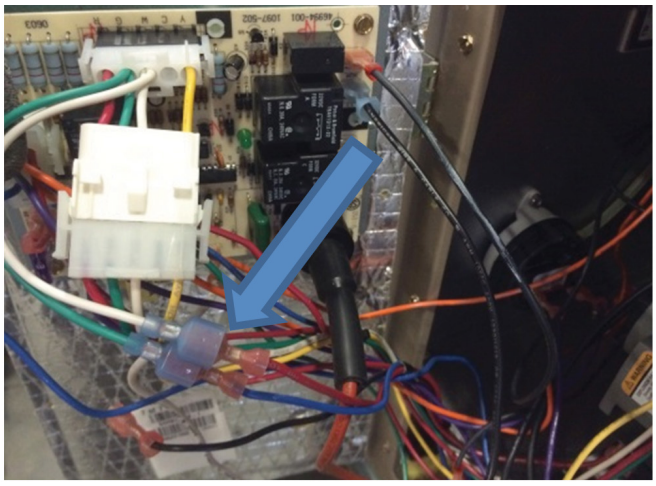
12. Attach cabinet's yellow wire to contactor on same side as chassis yellow wire.



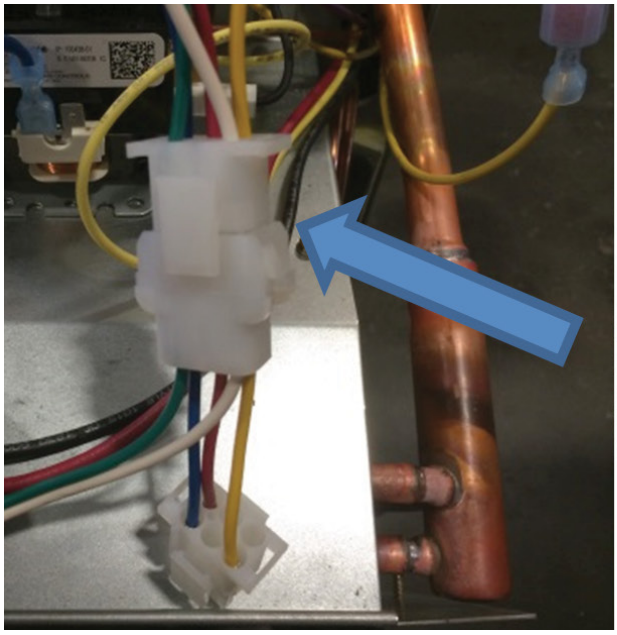
13. Remove 5-pin harness from heating control board and insert 104495-04 adapter in-line with it.

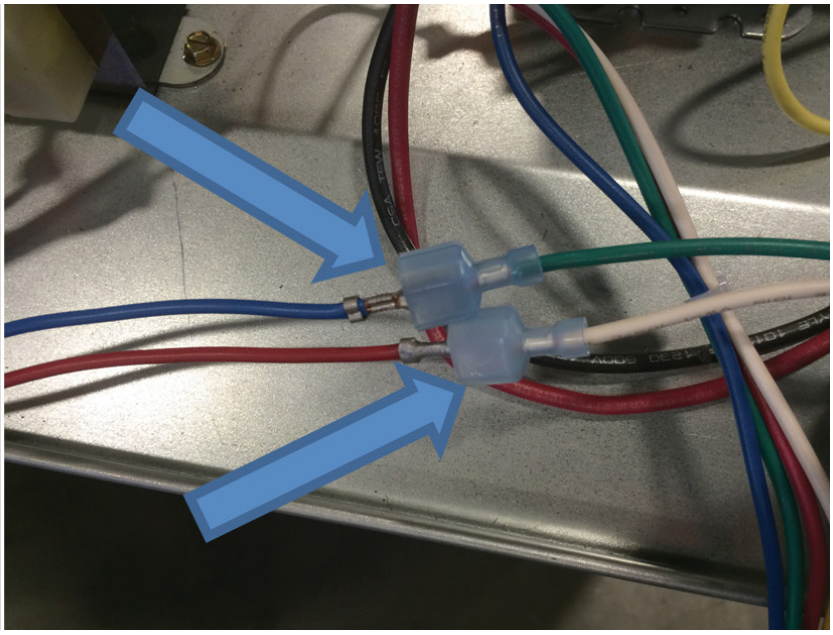


14. Unplug red, black and blue motor speed tap wires from heating control board. Attach blue wire to green terminal on 104495-04 adapter. Attach red wire to white terminal on 104495-04 adapter. Remove and discard the black wire.



15. Attach 104495-08 to new HWC chassis harness. Attach blue wire to green terminal on 104495-08 adapter. Attach red wire to white terminal on 104495-08 adapter.
    a. For HWC8N**12P30 & HWC9N**12P30: Attach 6-pin plug of chassis to 104495-11, and attach 104495-11 to 6-pin plug of cabinet.
    b. For all other HWC8N**12P**, HWC8N**13P**, HWC9N**12P**, & HWC9N**13P** models: attach 6-pin plug of chassis to 6-pin lug of cabinet.
    c. For HWC8***09P30 & HWC8***11P30: Attach 6-pin plug of chassis to 104495-10, and attach 104495-10 to 6-pin plug of cabinet.
    d. For all other models: Attach 104495-08 to new HWC chassis harness. Attach blue wire to green terminal on 104495-08 adapter. Attach red wire to white terminal on 104495-08 adapter.





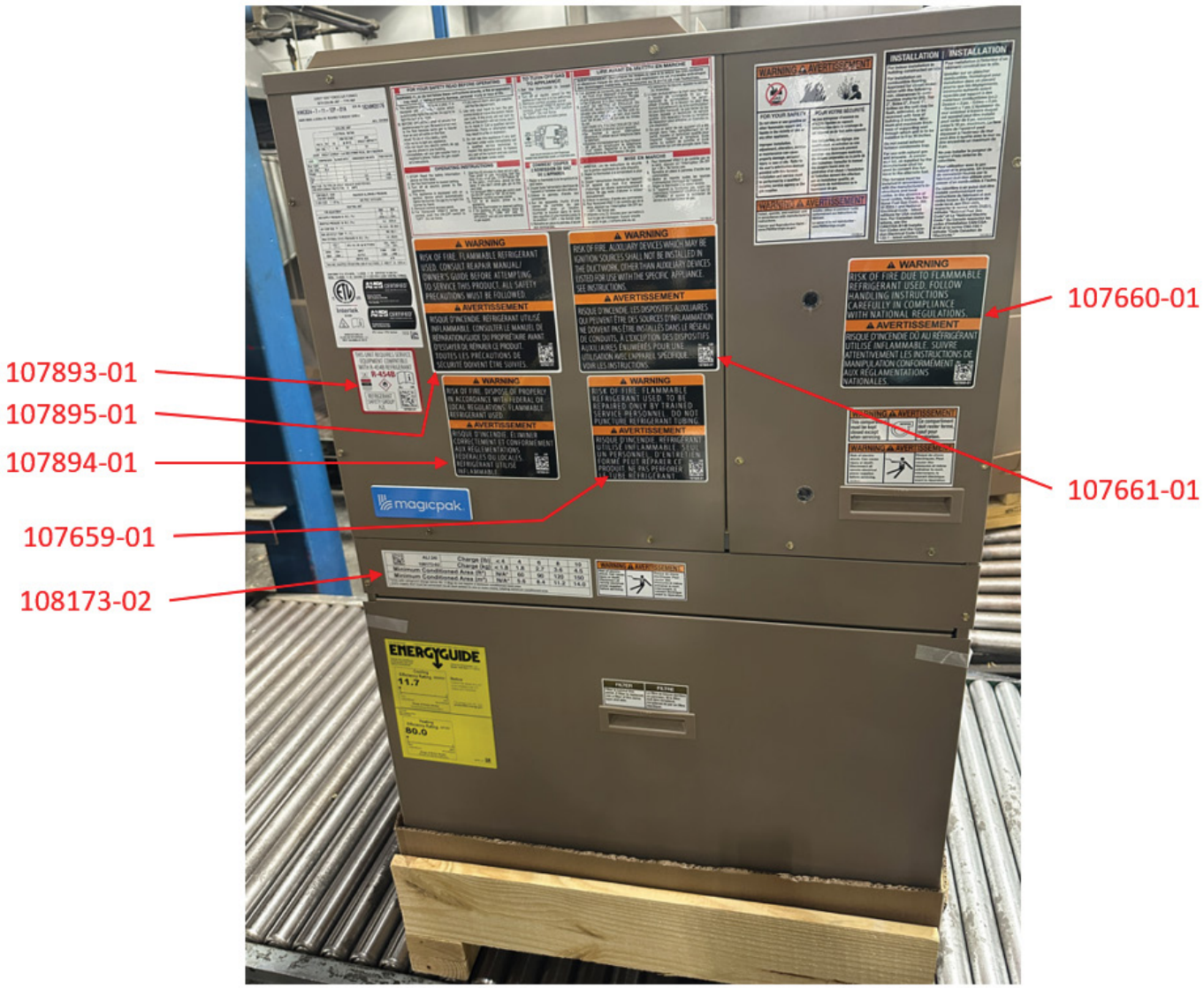
16. Re-Install the center rear panel on the unit, being careful not to pinch any wiring.
17. Re-install the filter access panel on the new center rear panel.
18. Establish the gas and electrical supply to the unit and check the following.
    a. Set thermostat for a call for cooling.
    b. The compressor, condenser fan, and blower will start approximately 8 seconds after the thermostat calls for cooling.
    c. When the thermostat is satisfied in the cooling mode, the compressor and condenser fan motor will shut off immediately. The circulating air blower will continue to operate for approximately 90 seconds.
    d. Set the themostat to call for heat.
    e. Verify the main burners are lit. The circulating air blower will start approximately 60 seconds after the thermostat calls for heat.

⚠ WARNING

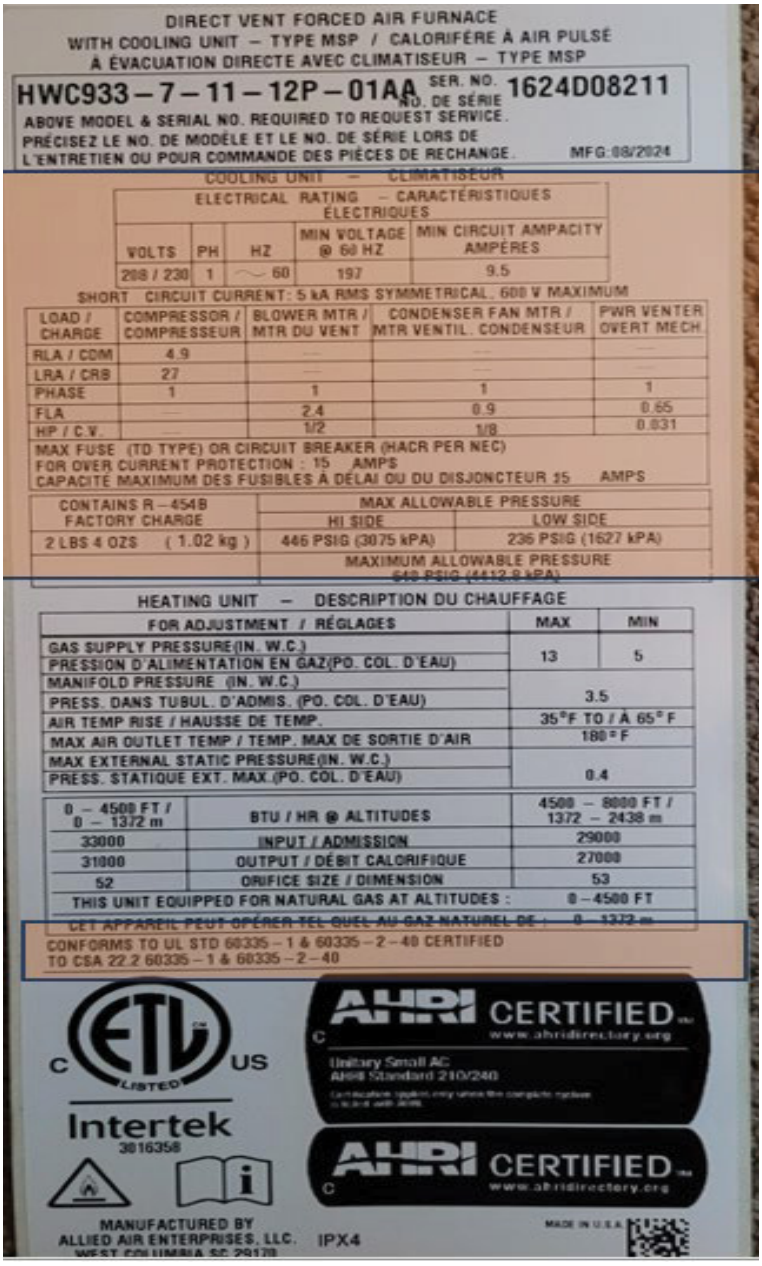
Consult current HWC specifications to ensure wire and breaker are sized appropriately.

    f. Allow the unit to reach steady state conditions and verify that the unit is operating within the rise range shown on the unit rating plate. If the unit is not operating within the rise range, adjust the blower speed.
    g. Turn thermostat down. The circulating air blower will continue to operate for approximately 120 seconds after the thermostat is satisfied.
19. Install the new wiring diagram (supplied) on the unit over the existing wiring diagram. If wire modifications were required, mark the changes on the wiring diagram for future reference.
20. Find the appropriate labels as shown below that were supplied with the replacement chassis:
    a. 107893-01
    b. 107894-01
    c. 107659-01
    d. 107660-01
    e. 107661-01
    f. 108173-02

21. Place the safety labels onto the exterior chassis viewable when facing the unit as shown in the diagram below.



22. Install the new rating plate labels over the existing rating plate to update the refrigerant information on the rating plate. The rating plate will be replaced in the sections shown below in orange.



DIRECT VENT FORCED AIR FURNACE
WITH COOLING UNIT – TYPE MSP / CALORIFÉRE À AIR PULSÉ
À ÉVACUATION DIRECTE AVEC CLIMATISEUR – TYPE MSP

HWC933–7–11–12P–01AA SER. NO. / NO. DE SÉRIE 1624D08211

ABOVE MODEL & SERIAL NO. REQUIRED TO REQUEST SERVICE.
PRÉCISEZ LE NO. DE MODÈLE ET LE NO. DE SÉRIE LORS DE L'ENTRETIEN OU POUR COMMANDE DES PIÈCES DE RECHANGE. MFG: 08/2024

COOLING UNIT – CLIMATISEUR

ELECTRICAL RATING – CARACTÉRISTIQUES ÉLECTRIQUES

VOLTS	PH	HZ	MIN VOLTAGE @ 60 HZ	MIN CIRCUIT AMPACITY AMPÈRES
208 / 230	1	~ 60	197	9.5

SHORT CIRCUIT CURRENT: 5 kA RMS SYMMETRICAL, 600 V MAXIMUM

LOAD / CHARGE	COMPRESSOR / COMPRESSEUR	BLOWER MTR / MTR DU VENT	CONDENSER FAN MTR / MTR VENTIL. CONDENSEUR	PWR VENTER OVERT MECH
RLA / CDM	4.9	—	—	—
LRA / CRB	27	—	—	—
PHASE	1	1	1	1
FLA	—	2.4	0.9	0.65
HP / C.V.	—	1/2	1/8	0.031

MAX FUSE (TD TYPE) OR CIRCUIT BREAKER (HACR PER NEC)
FOR OVER CURRENT PROTECTION : 15 AMPS
CAPACITÉ MAXIMUM DES FUSIBLES À DÉLAI OU DU DISJONCTEUR 15 AMPS

CONTAINS R–454B FACTORY CHARGE	MAX ALLOWABLE PRESSURE	
	HI SIDE	LOW SIDE
2 LBS 4 OZS (1.02 kg)	446 PSIG (3075 kPA)	236 PSIG (1627 kPA)
	MAXIMUM ALLOWABLE PRESSURE 648 PSIG (4412.9 kPA)	

HEATING UNIT – DESCRIPTION DU CHAUFFAGE

FOR ADJUSTMENT / RÉGLAGES	MAX	MIN
GAS SUPPLY PRESSURE(IN. W.C.) / PRESSION D'ALIMENTATION EN GAZ(PO. COL. D'EAU)	13	5
MANIFOLD PRESSURE (IN. W.C.) / PRESS. DANS TUBUL. D'ADMIS. (PO. COL. D'EAU)	3.5	
AIR TEMP RISE / HAUSSE DE TEMP.	35°F TO / À 65°F	
MAX AIR OUTLET TEMP / TEMP. MAX DE SORTIE D'AIR	180°F	
MAX EXTERNAL STATIC PRESSURE(IN. W.C.) / PRESS. STATIQUE EXT. MAX.(PO. COL. D'EAU)	0.4	

0 – 4500 FT / 0 – 1372 m	BTU / HR @ ALTITUDES	4500 – 8000 FT / 1372 – 2438 m
33000	INPUT / ADMISSION	29000
31000	OUTPUT / DÉBIT CALORIFIQUE	27000
52	ORIFICE SIZE / DIMENSION	53
THIS UNIT EQUIPPED FOR NATURAL GAS AT ALTITUDES :		0 – 4500 FT
CET APPAREIL PEUT OPÉRER TEL QUEL AU GAZ NATUREL DE :		0 – 1372 m

CONFORMS TO UL STD 60335–1 & 60335–2–40 CERTIFIED
TO CSA 22.2 60335–1 & 60335–2–40

ETL LISTED C US
Intertek 3816358

AHRI CERTIFIED www.ahridirectory.org
Unitary Small AC
AHRI Standard 210/240

AHRI CERTIFIED www.ahridirectory.org

MANUFACTURED BY ALLIED AIR ENTERPRISES, LLC. WEST COLUMBIA SC 29170
IPX4
MADE IN U.S.A.

23. Proceed to the Magic Pak Chassis Retrofit Virtual Validation Instructions on the next page.

Magic Pak Chassis Retrofit Virtual Validation Instructions

1. Once all previous steps have been completed, please call the ETL validation hot-line to certify the unit safe for use at 1-212-803-5322
2. When the validator answers please advise them that you are calling to: “Validate a Magic Pak Chassis Retrofit”
3. The validator will then ask for your name, phone number and email address
4. The validator will then confirm some information on the unit such as:
   - Installation Address
   - Serial Number of the Existing cabinet
   - Serial Number of the REPLACEMENT chassis
   - Validate that the unit is compatible for conversion. ONLY R-410A units are eligible for conversion.
5. The validator will ask if the field wiring and overcurrent protection or breaker size has been checked to be compliant with the updated electrical specifications? (yes or no) What is the current wire gauge size? (xx gauge) What is the breaker size installed? (xx Amps) A response of no will require the field wiring and overcurrent protection devices be updated before validation can be completed.
6. The validator will ask if the refrigerant deflector was installed per steps 7-9 in the installation manual? (yes or no). An answer of no will require the installer to remove the chassis and install the supplied refrigerant deflector to the cabinet of the unit (steps 7-9 in the installation manual above).The validator will then ask the question: Is the unit a free air return application? (yes or no)
7. The validator will then ask the question: Is the unit a free air return application? (yes or no)

8a. If response to question 7 is yes, a field installed RDS is required and the validator will then ask the question: Is the field installed RDS kit installed? (yes/no) An answer of no will require the installer to install and test the RDS system before calling back to certify.

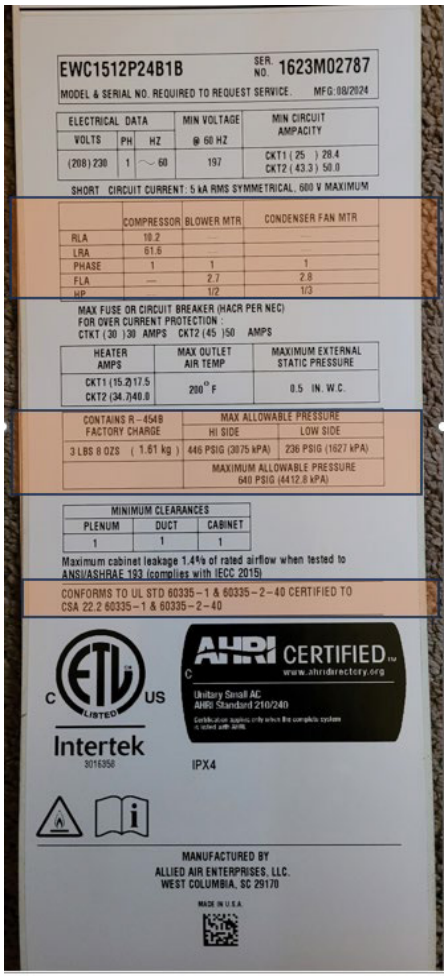
8b. If the answer to question 7 is no, the validator will ask: is the optional RDS kit installed? (yes/no). It is ok to proceed to a teams call with an answer of no in this situation. No validation of RDS installation is required.

9. If the answer to either 8a or 8b was yes, the validator will ask: Has the test procedure been conducted on the RDS kit and verified? An answer of no will prompt the validator to ask that the installer perform the test procedure on the RDS system before calling back to certify.

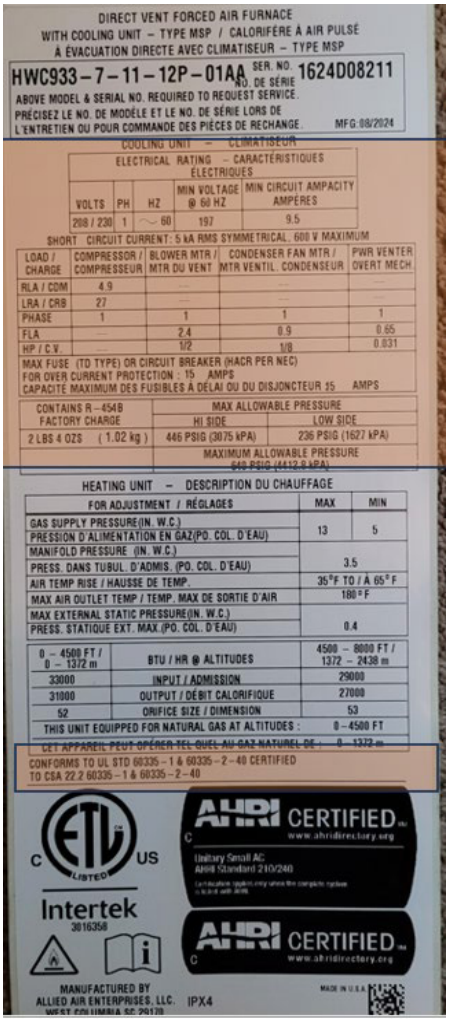
1. The validator will then send you a TEAMS invite via email to you that you would need to accept and join. You would stay on the original phone conversation but initiate a video share on your end to allow the validator to capture the following images:

   • Picture of the newly placed cooling section label overtop of existing Nameplate of Magic Pak Unit. This will allow Intertek Rep to confirm the Serial Number as well as confirmation of newly placed label.

   o Example:



EWC* Example**



HWC* Example**

- Picture of the New Marking Labels on the Outside of the MagicPak Unit
  - Example:

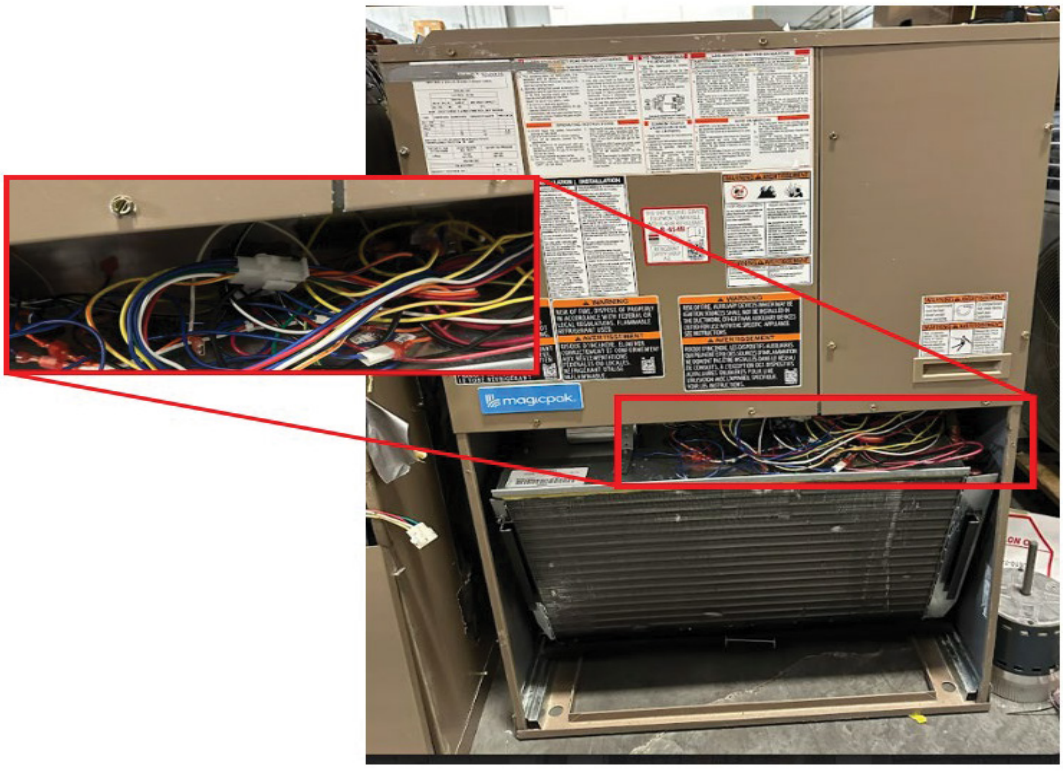
Desired Location of Safety labels

Required Safety Labels for the Outside of the Magic Pak Unit

ETIPR..... 108173-02	Charge (lb)	<4	4	6	8	10
	Charge (kg)	<4	1.8	2.7	3.6	4.5
Minimum Conditioned Area (ft^2)		N/A**	60	90	120	150
Minimum Conditioned Area (m^2)		N/A**	5.6	8.4	11.2	14.0

* Units with refrigerant charge below 4 lb, (1.8 kg) do not require a minimum conditioned room area.
-Unit's supply duct must be connected via air duct system to one or more rooms, totaling minimum conditioned area.

- Picture of the two connection points to ensure secure installation:
  - Example:

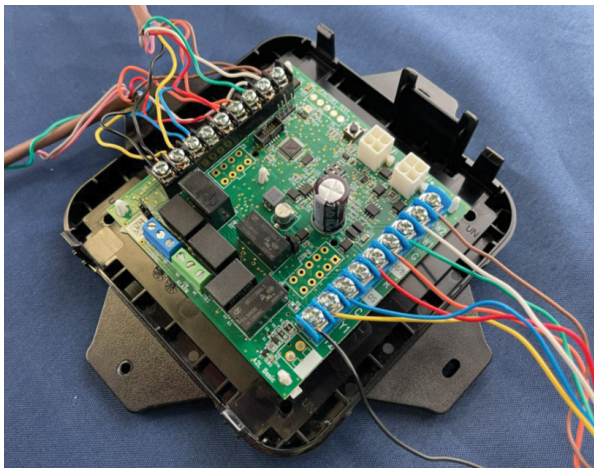


- Picture of the wire size and overcurrent protection.
  - Example:

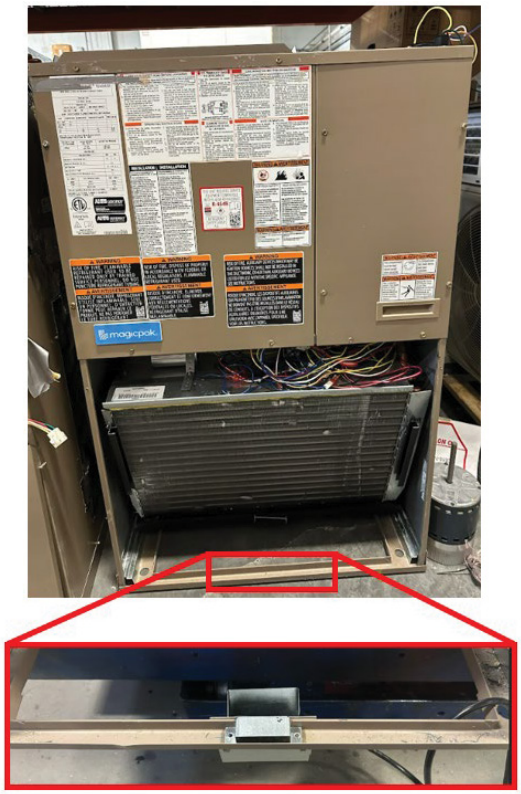
Picture of the field wiring to unit
(Picture should clearly show wire gauge)

Picture of overcurrent protection
(Picture should clearly show breaker size)

- Picture of the RDS Sensor and Board Installation (if applicable)
  - Example:



RDS Mitigation Board



RDS Sensor Installation