



Installation Manual

For N109X and N109XXX models: 10 cu.ft., 2-way R.V. refrigerators.
For N109XIM and N109XIMXX models: 10 cu.ft., 2-way R.V. refrigerators with ice maker.

The letter “X”, in the model numbers above, stands for a letter or numeral which means a refrigerator option.



WARNING: Improper installation, adjustment, alteration, service or maintenance can cause personal injury or property damage. Refer to this manual. For assistance or additional information, contact a qualified installer, service agency, or the gas supplier.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquid in the vicinity of this or any other appliance.

FOR YOUR SAFETY

If you smell gas:

1. Open windows.
2. Don't touch electrical switches.
3. Extinguish any open flame.
4. Immediately call your gas supplier.



WARNING: DO NOT install this refrigerator in below deck marine applications. Do not install this refrigerator in a fixed indoor cabin or other dwelling applications. This refrigerator must use only NORCOLD designed and approved outside air intake and exhaust ventilation for correct and safe operation. Any other ventilation could cause lethal combustion exhaust fumes and/or explosive propane gas fumes to be in the living area and/or to be below deck.

English

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Safety Awareness

Read this manual carefully and understand the contents before you install the refrigerator.

Be aware of possible safety hazards when you see the safety alert symbol on the refrigerator and in this manual. A signal word follows the safety alert symbol and identifies the danger of the hazard. Carefully read the descriptions of these signal words to fully know their meanings. They are for your safety.



WARNING: This signal word means a hazard, which if ignored, can cause dangerous personal injury, death, or much property damage.



CAUTION: This signal word means a hazard, which if ignored, can cause small personal injury or much property damage.

Safety Instructions



WARNING:

- This refrigerator is not approved for use as a free standing refrigerator. It is equipped for the use of propane gas only and can not be changed to use any other fuels (natural gas, butane, etc.).
- Incorrect installation, adjustment, alteration, or maintenance of this refrigerator can cause personal injury, property damage, or both.
- Obey the instructions in this manual to install intake and exhaust vents.
- Do not install the refrigerator directly on carpet. Put the refrigerator on a metal or wood panel that extends the full width and depth of the refrigerator.
- Do not allow anything to touch the refrigerator cooling system.
- Propane gas can ignite and cause an explosion that can result in property damage, personal injury, or death. Do not smoke or create sparks. Do not use an open flame to examine the propane gas supply line for leaks. Always use two wrenches to tighten or loosen the propane gas supply line connections.
- Make sure the electrical installation obeys all applicable codes. See "Certification and Code Requirements" section.
- Do not bypass or change the refrigerator's electrical components or features.
- Do not spray liquids near electrical outlets, connections, or the refrigerator components. Many liquids are electrically conductive and can cause a shock hazard, electrical shorts, and in some cases fire.
- The refrigerator cooling system is under pressure. Do not try to repair or to recharge a defective cooling system.
- The cooling system contains sodium chromate. The breathing of certain chromium compounds can cause cancer. The cooling system contents can cause severe skin and eye burns, and can ignite and burn with an intense flame. Do not bend, drop, weld, move, drill, puncture, or hit the cooling system.



CAUTION:

- The rear of the refrigerator has sharp edges and corners. To prevent cuts or abrasions when working on the refrigerator, use caution and wear cut resistant gloves.

Certification and Code Requirements



Art01290



This refrigerator is certified by CSA International as meeting the latest edition of ANSI Z21.19 / CAN 1.4 standards for installation in mobile homes or recreational vehicles.

The refrigerator must be installed in accordance with this "Installation Manual" in order for the Norcold limited warranty to be in effect. In addition, the installation must conform to the following, as applicable:

In the United States and Canada:

- Local codes, or in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54, the Natural Gas and Propane installation Code, CSA B149.1, ANSI A119.2 Recreational Vehicles Code, and CSA Z240 RV Series, Recreational Vehicles.
- A manufactured home (mobile home) installation must conform with the Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280 [formerly the Federal Standard for Mobile Home Construction and Safety, Title 24 (part 280), and the current CSA Z240.4, Gas-equipped Recreational Vehicles and Mobile Housing.
- If an external power source is utilized, the appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, the National Electrical code, and ANSI/NFPA 70, or the Canadian Electrical Code, CSA C22.2. Parts 1 and 2.

All propane gas supply piping and fittings must obey local, state, and national codes about type and size. These components must also obey the current NFPA 501C section 2-4, and in Canada with the current CAN 1-6.10 Standard.

Ventilation Requirements



WARNING: The completed installation must:

- Make sure there is sufficient intake of fresh air for combustion.
- Make sure the living space is completely isolated from the combustion system of the refrigerator.
- Make sure there is complete and unrestricted ventilation of the flue exhaust which, in gas mode, can produce carbon monoxide. The breathing of carbon monoxide fumes can cause dizziness, nausea, or in extreme cases, death.
- Make sure the refrigerator is completely isolated from its heat generating components through the correct use of baffles and panel construction.

Certified installation needs one lower intake vent and one upper exhaust vent. Install the vents exactly as written in this manual. Any other installation method voids both the certification and the factory warranty of the refrigerator.

The bottom of the opening for the lower intake vent, which is also the service access door, must be even with or immediately below the floor level. This allows any leaking propane gas to escape to the outside and not to collect at floor level.

CSA International certification allows the refrigerator to have zero (0) inch minimum clearance at the sides, rear, top, and bottom. While there are no maximum clearances specified for certification, the following maximum clearances are necessary for correct refrigerator performance:

Bottom	0 inch min.	0 inch max.
Each Side	0 inch min	1/2 inch max.
Top	0 inch min.	1/4 inch max.
Rear	0 inch min.	1 inch max.

These clearances plus the lower and upper vents cause the natural air draft that is necessary for good refrigeration. Cooler air comes in through the lower vent, goes up around the refrigerator coils where it removes the excess heat from the refrigerator components, and goes out through the upper vent. If this air flow is blocked or decreased, the refrigerator will not cool correctly.

Each NORCOLD model is certified by CSA International for correct ventilation. Install only the certified vents that are listed in this manual.

Key Refrigerator Dimensions

These key refrigerator dimensions are for your reference as necessary (See Art01735).

Refrigerator cabinet width w/o trim - 23.1 in.	1
Refrigerator width overall w/ trim - 24.8 in.	2
Refrigerator cabinet to side trim - 0.84 in.	3
Refrigerator cabinet height w/o trim - 62.0 in.	4
Refrigerator height overall w/ trim - 59.7 in.	5
Refrigerator cabinet to top/bottom trim - 1.13 in.	6
Enclosure wall to hinges - 3.10 in.	7
Refrigerator cabinet to center of handles - 40.5	8

Assemble the Enclosure for the Refrigerator

1. Make sure the enclosure is 59.88 - 60.01 inches high x 23.50 - 23.63 inches wide x 24 inches deep.
2. Make sure the floor is solid and level.
 - The floor must be metal or a wood panel and extend the full width and depth of the enclosure.
 - The floor must be able to support the weight of the refrigerator and its contents.
3. Make sure there are no adjacent heat sources such as a furnace vent, a hot water heater vent, etc.
4. If there is more than 1/2 inch between either side of the refrigerator and the inside of the enclosure:
 - Fill the space with fiberglass insulation or add a baffle to eliminate the excess clearance.
 - Make sure that the rear of the batt-type insulation is between 18 - 19 inches from the face of the enclosure.
 - Securely attach the batt-type insulation to the enclosure so that it remains in this position during refrigerator installation, if it becomes wet, and in windy conditions.

Install the Lower and Upper Vents

1. Using the following chart, decide which vents and rough opening (RO) sizes to use:

Certified Vent	P/N	RO Height	RO Width
Upper Roof Exhaust Cap	622293	N/A	N/A
Upper Roof Exhaust Vent	616319	24 in.	5 1/4 in.
Upper Exhaust & Lower Intake Plastic	621156	13 3/4 in.	21 1/2 in.
Lower Square Corner Intake	616010	9 3/4 in.	19 3/8 in.

2. Install the lower intake vent (See Art01602):

NOTE: The lower intake vent is also the service access opening for the components on the rear of the refrigerator.



WARNING: Make sure the bottom of the opening of the lower intake vent is even with or immediately below the floor level. This allows any leaking propane gas to escape to the outside and not to collect at floor level.

- Make sure the bottom of the opening of the lower intake vent [1] is even with or immediately below the floor level.
- Align the lower intake vent vertically below the coils [2] and the condenser [3] of the refrigerator.

3. Install the upper exhaust vent:



CAUTION: Make sure that no sawdust, insulation, or other construction debris is on the refrigerator or in the enclosure. Debris can cause a combustion hazard and prevent the refrigerator from operating correctly.

NOTE: Tighten the screws of the upper roof exhaust cap to 10 inch-pounds max. Also make sure that the air flow around the upper roof exhaust cap is not blocked or decreased by other roof mounted features such as a luggage carrier, an air conditioner, a solar panel, etc.

- If the design of the vehicle allows, install the roof exhaust vent [4] directly above the condenser [3] of the refrigerator (See Art01676):
 - Install a baffle [5] to prevent stagnant hot air in the area [6] above the refrigerator.
 - Make sure there is less than 1/4 inch clearance [7] between the baffle and the top of the refrigerator.
 - Make sure the baffle is the full width of the inside of the enclosure.
 - If the design of the vehicle does not allow you to install the roof exhaust vent directly above the condenser [3] of the refrigerator (See Art01677):
 - Align the roof exhaust vent [4] above the condenser [3] of the refrigerator and move it inboard as necessary.
 - Install two baffles [8] to prevent stagnant hot air in the area [6] above the refrigerator.
 - Make sure the baffles are the full width of the inside of the enclosure.
 - Make sure that the baffles are no more than 45° from vertical [9].

- Put one baffle between the top rear edge of the refrigerator and the inside edge of the upper exhaust vent opening.
 - Put the other baffle between the outside edge of the upper exhaust vent opening and the side wall of the vehicle.
- If the depth of the enclosure is 24 inches or more and is less than 25 inches, no baffles are necessary at the rear of the enclosure.
 - If the depth of the enclosure is 25 inches or more and is less than 26 inches, add two baffles [10] to the rear of the enclosure (See Art01676 and Art01677).
 - Put one baffle 18 inches to 18 1/2 inches above the bottom of the enclosure [26] (4 1/4 inches to 4 3/4 inches above the top of the lower intake vent opening REF) [27] .
 - Put the other baffle at the lowest edge of the condenser [3] of the refrigerator.
 - Make sure that the baffles are 1 inch or less [28] from the coils [2] and condenser [3] of the refrigerator.
 - Make sure that the baffles are the full width of the inside of the enclosure.
 - If the depth of the enclosure is more than 26 inches, install a wood or an aluminum or galvanized sheet solid box baffle [25] in the rear of the enclosure (See Art01681 and Art01682).
 - Make sure that the bottom of the solid box baffle is 18 inches to 18 1/2 inches above the bottom of the enclosure [26] (4 1/4 inches to 4 3/4 inches above the top of the lower intake vent opening REF) [27] .
 - Make sure that the back of the solid box baffle is perpendicular to the bottom of the enclosure.
 - Make sure that the back of the solid box baffle is either against the top of the enclosure or against the angled baffle [8] (depending on the vehicle design).
 - Make sure that the solid box baffle is one inch or less [28] from the coils [2] and condenser [3] of the refrigerator.
 - Make sure that the solid box baffle is the full width of the inside of the enclosure.
- If the design of the vehicle does not allow you to install a roof exhaust vent, install an upper side-wall exhaust vent.
- NOTE: The refrigerator is 23.7 in. min. to 24.0 in. max. from the rear of the breaker to the rear of the condenser [11] and 54.1 in. min. to 54.4 in. max. from the bottom of the refrigerator to the bottom of the refrigerator condenser [12] (See Art01678).
- Install the upper side-wall exhaust vent [13] (See Art01679 and Art01680).
 - Make sure the distance [14] from the bottom of the enclosure to the top of the rough opening for the upper exhaust vent is at least 62 inches.
 - Align the upper exhaust vent [13] horizontally above the lower intake vent [1] of the refrigerator.
 - To prevent stagnant hot air in the area above the refrigerator, install an aluminum or galvanized steel sheet baffle [15] between the top of the refrigerator and the top of the upper exhaust vent.
 - Make sure there is less than 1/4 inch clearance between the baffle and the top of the refrigerator [16] and that the baffle overlaps the refrigerator 1 inch or less.
 - Make sure that the baffle is against the wall of the vehicle at the top of the upper exhaust vent and 1/4 inch or less from the top of the opening for the upper exhaust vent [17].
 - Make sure the baffle is the full width of the inside of the enclosure.
 - When using an upper side-wall exhaust vent:
 - If the depth of the enclosure is more than 24 inches and less than 26 inches [18], install a bent aluminum or galvanized steel sheet baffle [19] to the rear of the enclosure (See Art01679).
 - Make sure that the bend of the baffle is the full width of the inside of the enclosure.
 - Make sure that the bend of the baffle is flush with the bottom edge of the upper intake vent door frame.

- Make sure that the top edge of the baffle is between 1/4 inch [213] below the condenser [3] and 1 1/2 inches above the bottom of the condenser and that there is 1/4 inch or less clearance [21] between the rear of the condenser and the baffle.
 - For the best cooling performance, the baffle should be 1/4 inch below the bottom of the condenser.
 - If the depth of the enclosure is more than 26 inches [22], install a wood or an aluminum or galvanized steel sheet solid box baffle [23] between the lower intake vent and the upper exhaust vent (See Art01680).
 - Make sure that the solid box baffle is the full width of the inside of the enclosure.
 - Make sure that the bottom of the solid box baffle is 18 inches to 18 1/2 inches above the bottom of the enclosure [26] (4 1/4 inches to 4 3/4 inches above the top of the lower intake vent opening REF) [27] .
 - Make sure that the back of the solid box baffle is perpendicular to the bottom of the enclosure.
 - Make sure that the horizontal top of the solid box baffle is even with the bottom edge of the upper exhaust vent [13].
 - Make sure that the vertical top edge of the baffle is between 1/4 inch [213] below the condenser [3] and 1 1/2 inches above the bottom of the condenser.
 - Make sure that there is 1/4 inch or less clearance [21] between the rear of the condenser and the baffle.
 - Pull the door latch and remove each door from the refrigerator.
 - Remove and save the lower hinge pin [5] from each hinge.
3. Remove the upper mounting flange and the lower mounting flange (See Art01683):
 - Remove and save the four screws [2] from the upper mounting flange [3] and from the lower mounting flange [4].
 4. Change the position of the cabinet hinges and the strike plate (See Art00983 and Art01685):
 - Remove and save the screws from the strike plate [5a].
 - Remove and save the top and bottom of the three screws [9] that are beside the strike plate.
 - Do not remove the center screw.
 - Put each of the outside cabinet hinges [14a] on the other side of the refrigerator [14b].
 - Make sure that the offset of these hinges is positioned down on upper cabinet hinge and up on the lower cabinet hinge.
 - Attach each of these hinges with screws.
 - Remove and save the screws from the center cabinet hinges [15a].
 - Reverse each center hinge and put on the other side of the refrigerator [15b].
 - Attach each of these hinges with screws.
 - Remove and save the screw [8] from the front box [6] (See Art00983).
 - Pull the front box away from the refrigerator and out from under the controls [7].
 - Reverse the front box and put it on the opposite side of the controls.
 - Attach the front box to the refrigerator with the screw [8] that was removed before.
 - Put the strike plate on the opposite side of the refrigerator [5b].
 - Put the two screws [9] into the holes that are beside the strike plate.

5. Change the position of the door handles (See Art01727):

- Remove the screw(s) [12] and door handle [10] from each door.

Reverse the Door Swing-Nonmetal Doors (optional)

This refrigerator has cabinet hinges that allow you to change the direction the door opens by moving the hinges on a diagonal to the opposite side. Reverse the door swing before installing the refrigerator in the vehicle.

1. Pull off both the upper [19] and lower [18] trim pieces if they are already installed (See Art01688 and Art01689).

2. Remove the doors (See Art01731):

- Remove the storage bins from the doors.

NOTE: Do not mix the upper and lower hinge pins because they are different.

- Remove and save the upper hinge pin [1] from each door.

- Reverse each door handle and put the lower door handle on the upper door and the upper door handle on the lower door.
 - Attach each door handle with the screws.
6. Install the upper mounting flange and the lower mounting flange in the original positions (See Art01683):



WARNING: Make sure that both foam pads [5] remain in position on each mounting flange to complete the combustion seal. If the seal is not complete, exhaust fumes can be present in the living area of the vehicle. The breathing of exhaust fumes can cause dizziness, nausea, or in extreme cases, death.

- Make sure that both foam pads [5] remain in position on each mounting flange to complete the combustion seal.
 - Attach the upper mounting flange [3] and the lower mounting flange [4] with four screws [2].
- NOTE: The lower mounting flange has more bends than the upper mounting flange.
- Securely tighten the screws.

7. Reinstall the doors (See Art01731):

- Turn the lower hinge pins into the lower cabinet hinges.

NOTE: To prevent damage to the threads of the hinge pins, turn the hinge pins by hand until tight and then tighten with a screwdriver.



CAUTION: Apply Loctite removable thread locker (blue) to the threads of the hinge screws before assembly to prevent loosening during use. Do not allow Loctite to contact any of the plastic surfaces of the refrigerator because it can damage those surfaces.

- Put each door down onto the lower hinge pin.
 - Align the holes in the upper hinges and hold in this position.
 - Turn the upper hinge pin into the hinges of each door.
 - Tighten the hinge pins.
 - Put the storage bins in the doors.
8. To install the upper and lower trim pieces refer to the "Install the Refrigerator" section of this manual.

Reverse the Door Swing-Metal Doors (optional)

This refrigerator has door hinges that allow you to change the direction the door opens by moving the hinges on a diagonal to the opposite side. Reverse the door swing before installing the refrigerator in the vehicle.

1. Pull off both the upper [19] and lower [18] trim pieces if they are already installed (See Art01688 and Art01689).
2. Remove the doors (See Art01684):
 - Remove the storage bins from the doors.
 - Remove and save both hinge pins [1] from each door.
 - Remove and save both hinge bushings [13] from each door.
 - Pull the door latch and remove each door away from the refrigerator.
3. Remove the upper mounting flange and the lower mounting flange (See Art01683):
 - Remove and save the four screws [2] from the upper mounting flange [3] and from the lower mounting flange [4].
4. Change the position of the cabinet hinges and the strike plate (See Art00983 and Art01685):
 - Remove and save the screws from the strike plate [5a].
 - Remove and save the top and bottom of the three screws [9] that are beside the strike plate.
 - Do not remove the center screw.
 - Remove and save the screws [20] from the outside cabinet hinges [14a].
 - Put each of these hinges on the other side of the refrigerator [14b].
 - Make sure that the offset of these hinges is positioned down on upper cabinet hinge and up on the lower cabinet hinge.
 - Attach each of these hinges with screws.
 - Remove and save the screws from the center cabinet hinges [15a].
 - Reverse each center hinge and put on the other side of the refrigerator [15b].
 - Attach each of these hinges with screws.

- Remove and save the screw [8] from the front box [6] (See Art00983).
 - Pull the front box away from the refrigerator and out from under the controls [7].
 - Reverse the front box and put it on the opposite side of the controls.
 - Attach the front box to the refrigerator with the screw [8] that was removed before.
 - Put the strike plate on the opposite side of the refrigerator [5b].
 - Put the two screws into the holes that are beside the strike plate.
5. Change the position of the door handles and the door hinges (See Art01695 and Art00985):
- Remove the plastic cap that is opposite the upper hinge of the upper door.
 - Remove the cap screw [9] from the door handle [10] and the door hinges [11].
 - Remove the round head screw(s) [12] and door handle from each door.
 - Remove the upper hinge of each door.
 - Put each of these hinges on the other side of the door as the lower hinge.
 - Attach each of these hinges with the cap screws that were removed from the other side.
 - The recommended torque for each cap screw [9] is 35 in.-lbs.
 - Remove the lower hinge of each door.
 - Put each of these hinges on the other side of the door as the upper hinge.
 - Attach each of these hinges with the cap screws that were removed from the other side.
 - Reverse each door handle and put the lower door handle on the upper door and the upper door handle on the lower door.
 - Attach each door handle with a cap screw [9] and two screws [12].
 - Put the plastic cap into the hole that is opposite the upper hinge of the upper door.

6. Install the upper mounting flange and the lower mounting flange in the original positions (See Art01683):



WARNING: Make sure that both foam pads [5] remain in position on each mounting flange to complete the combustion seal. If the seal is not complete, exhaust fumes can be present in the living area of the vehicle. The breathing of exhaust fumes can cause dizziness, nausea, or in extreme cases, death.

- Make sure that both foam pads [5] remain in position on each mounting flange to complete the combustion seal.
- Attach the upper mounting flange [3] and the lower mounting flange [4] with four screws [2].

NOTE: The lower mounting flange has more bends than the upper mounting flange.

- Securely tighten the screws.

7. Reinstall the doors (See Art01684):

- Make sure each hinge bushing [13] is in the correct position.
 - Put each hinge bushing into the bottom side of each door hinge.
- Put each door in the position on the refrigerator.

NOTE: To prevent damage to the threads of the hinge pins, turn the hinge pins by hand until tight and then tighten with a screwdriver.



CAUTION: Apply Loctite removable thread locker (blue) to the threads of the hinge screws before assembly to prevent loosening during use. Do not allow Loctite to contact any of the plastic surfaces of the refrigerator because it can damage those surfaces.

- Align the hinges and put the hinge pins [1] into each door hinge.
- Tighten the hinge pins.
- Put the storage bins in the doors.

8. To install the upper and lower trim pieces refer to the "Install the Refrigerator" section of this manual.


Install Decorative Door Panels (non-metal door models)

NOTE: The doors are made to accept decorative panels. The decorative panels must be 3/16 inch or less in thickness. Install the decorative door panels in the refrigerator doors before installing the refrigerator in the vehicle.

- Make an upper door panel that is 21 19/32 inches wide x 14 17/32 inches high.
- Make a lower door panel that is 21 19/32 inches wide x 38 5/8 inches high.
- Pull the panel retainer [1] off each door (See Art00965).
- Push the decorative door panel [2] into the slots of the door [3].
- Push each panel retainer into the slot on the edge of the door.

Install the Refrigerator

1. Put the refrigerator in position (See Art01687, Art01688, and Art01689):

 **WARNING:** Make sure the combustion seal [16] is not broken, is completely around the refrigerator mounting flanges, and is between the mounting flanges and the wall of the enclosure. If the seal is not complete, exhaust fumes can be present in the living area of the vehicle. The breathing of exhaust fumes can cause dizziness, nausea, or in extreme cases, death.

NOTE: Be careful when you put the refrigerator into position. The refrigerator has vacuum insulating panels. If punctured, these panels lose insulation value which decreases the cooling performance of the refrigerator.

- Push the refrigerator completely into the enclosure.
- Put two mounting screws [17] through the lower mounting flange on the front of the refrigerator and into the enclosure wall.
- Put two mounting screws [17] through the upper mounting flange on the front of the refrigerator and into the enclosure wall.

2. Install the upper and lower trim pieces:

NOTE: These trim pieces are not the same. Make sure that the notch [20] in the upper and lower trim pieces fit around the upper and lower cabinet hinge.

- Align the tabs of each trim piece with the rectangular holes of each mounting flange.
- Push the lower trim piece [18] onto the front of the lower mounting flange [4] until you feel both ends engage and hear a “snap” sound.
- Push the upper trim piece [19] onto the front of the upper mounting flange [3] until you feel both ends engage and hear a “snap” sound.
- Put screws through mounting flange on the rear of the refrigerator and into the floor.

Connect the Ice Maker (N109XIM, and N109XIMXX models)

The ice maker is assembled to the refrigerators at the factory as optional equipment. If the refrigerator does not have a factory installed ice maker, one can not be added to the refrigerator at a later time.

The refrigerator installer must connect a cold water supply line to the solenoid valve at the rear of the refrigerator. The following are necessary to connect the icemaker:

- 1/4 in. OD copper tubing for the water supply line.

OR

- 1/4 in. OD plastic tubing for the water supply line.
- 1/4 in. shut off valve in the water supply line. This should be easily accessible through the lower intake vent.

Connect the water supply line:

Install a 1/4 in. OD water supply line [1] from the water shut off valve of the vehicle to the solenoid water valve [2] at the rear of the refrigerator (See Art01693):

NOTE: A brass compression nut [1], a brass sleeve, a plastic sleeve [2], and a brass insert [3] are supplied and attached to the rear of the refrigerator (See Art01604).


- Put the compression nut and then the sleeve onto the water supply line [4].
 - For copper tubing, use the brass sleeve.
 - For plastic tubing, use the plastic sleeve [2].
 - For plastic tubing with .040 in. wall thickness, also use the brass insert [3].

- Flush the water supply line until the water is clear.
- Put the tubing into the adapter [5] until it is against the stop of the adapter.
- Tighten the compression nut by hand (hard finger tight).
- Using two wrenches, tighten the compression nut 1 ½ to 2 turns.
- Open the water shut off valve of the vehicle.
- Examine the connections for leaks.


Connect the Electrical Components

AC Operation	120 volts AC voltage (132 volts max. - 108 volts min.)
	12 volts DC control voltage (15.4 volts max. - 10.5 volts min.)

This refrigerator operates on these electrical sources. Operation out of these limits may damage the refrigerator's electrical circuit parts and will void the warranty.

 **WARNING:** The rear of the refrigerator cooling system has hot surfaces and sharp surfaces that can damage electrical wiring. Make sure that there is a good clearance between all electrical wiring and the cooling system of the refrigerator. Position any electrical wiring within the refrigerator enclosure opposite the burner side of the refrigerator. Do not put any electrical wiring through the roof exhaust vent. Failure to correctly position electrical wiring can result in electrical shock or fire.

Connect the 120 volts AC supply:

 **WARNING:** Connect the AC power cord(s) only to a grounded three-prong receptacle. Do not remove the round ground prong from any of the AC power cords. Do not use a two prong adapter or an extension cord with any of the AC power cords. Operation of the refrigerator without correct ground can cause dangerous electrical shock or death if you are touching the metal parts of the refrigerator.


Put the AC power cord(s) into a grounded three-prong receptacle:

- Make sure the receptacle is positioned within easy reach of the lower intake vent.
- Make sure the power cord(s) does not touch the burner cover, the flue pipe, or any hot component that could damage the insulation of the power cord.

Connect the 12 volts DC supply:

As the distance from the vehicle battery to the refrigerator increases, the correct AWG wire size and fuse size also increases. If the wire size is too small for the distance, a voltage drop occurs.

1. Determine the min. wire size and the max. fuse size to use:

 **WARNING:** If you use an incorrect wire size and/or fuse size, electrical fire can result.

- Use a minimum of 18 AWG wire and a maximum 6 Amp fuse.
- If the wire size is larger than the min. size, use the correct fuse per RVIA A119.2 standard or local codes.

2. Install a fuse in DC power supply wires between the battery and the refrigerator:

- Put fuse as close to the battery as possible.

3. Connect the DC power supply wires (See Art00966):

- Attach a 1/4 inch Quick Connect terminal to each DC power supply wire.

NOTE: Do not use the chassis of the refrigerator or the vehicle frame as one of the conductors. Attach the DC power supply wires only to the battery and the power board [1] of the refrigerator.

- Push the positive DC power wire [2] onto the power board terminal that is marked 12VDC.
- Push the DC ground wire [3] onto the power board terminal that is marked GND.
- Make sure each DC power supply wire is on the correct polarity terminal.

Connect the Propane Gas Components

This refrigerator operates on propane gas at a pressure of 11 inches Water Column Propane.

The controls operate on 12 volts DC (10.5 volts min. - 15.4 volts max.). Operation out of these limits can damage the refrigerator electrical circuit parts and will void the warranty.

Connect the propane gas supply system:



WARNING: Be very careful when working on or near the propane gas system.

- Do not smoke, or use an open flame near the propane gas system.
- Do not use an open flame to examine for leaks.
- Do not connect the refrigerator to the propane gas tank without a pressure regulator between them.
- To avoid a propane gas leak, always use two wrenches to tighten or loosen the propane gas supply line connections.
- Leaking propane gas can ignite or explode and result in dangerous personal injury or death.

Connect the gas supply line to the refrigerator:

- Make sure that all tubing and fittings obey all local, state, and national codes about size and type.
- Make sure that all flexible metal connectors obey the current CAN1-6.10 Standard.
- Make sure that the materials used for the gas supply line obey both the current ANSI A 119.2 (NFPA 1192) and CSA Z240 Standards on Recreational Vehicles. Norcold recommends the use of 3/8 inch copper tubing as the gas supply line and requires a 3/8 inch SAE (UNF 5/8-18) male flare fitting as the connection to the refrigerator.
- Put the propane gas supply line up through the floor of the enclosure.
- Make sure the hole through the floor is large enough allow clearance for the gas supply line.
- Put a weather resistant seal (grommet, sealant, etc.) around the gas supply line where it goes through the floor to prevent vibration and abrasion.
- Make sure that the propane gas supply line does not interfere with removal of the burner box cover or block the door opening of the burner box cover.
- To prevent vibration and abrasion, make sure that the gas supply line is not against anything in the enclosure.
- Attach the gas supply line to the combination gas valve of the refrigerator.

Examine the gas supply system for leaks:



WARNING: Do not allow the leak detecting solution to touch the electrical components. Many liquids are electrically conductive and can cause electrical shorts and in some cases, fire.

Use a leak detecting solution to examine the gas supply line and all propane gas connections for leaks.

If you use compressed air for the test:

- The pressure of the compressed air at the manual shut off valve of the refrigerator must not be more than 1/2 psig (14 inches Water Column).
- If the pressure of the compressed air is more than 1/2 psig (14 inches Water Column), remove the gas supply line from the combination gas valve of the refrigerator before the test.
- If the pressure of the compressed air is equal to or less than 1/2 psig (14 inches Water Column), close the manual shut off valve of the refrigerator before the test.

Ignition and Start Up

Before ignition or start up of the refrigerator:

- Make sure the air flow in the lower intake vent, through the refrigerator coils and condenser, and out the upper exhaust vent is not blocked or decreased.
- Make sure there are no combustible materials in or around the refrigerator.

Ignition and start up: (See Art01018)

NOTE: If the gas does not ignite in 30 seconds, the gas safety valve of the refrigerator automatically closes and the controls either select a different energy source or “no” “FL” appears in the center display. This means that the gas did not ignite.

If the gas does not ignite after several attempts, refer to the “Fault Codes” section of this manual.

Automatic Mode Operation:

1. Push the ON/OFF button [1] to start the refrigerator.

2. Push the MODE button [2] until "AU" appears in center display [4].
3. Push the TEMP SET button [3] as needed to set the thermostat at "4-6" temperature setting.
 - If "AU" "AC" appears in the center display, it means that:
 - 120 volt AC power is available to the refrigerator.
 - The refrigerator is operating on AC electric power.
 - After ten seconds, the "AU" "AC" goes off and only a green dot "." remains to show that the refrigerator is operating.
 - If "AU" "LP" appears in the center display, it means that:
 - 120 volt AC power is not available to the refrigerator.
 - The refrigerator is operating on propane gas.
 - After ten seconds, the "AU" "LP" goes off and only a green dot "." remains to show that the refrigerator is operating.

Manual Mode Operation:

1. Push the ON/OFF button [1] to start the refrigerator.
2. Push the MODE button [2] until "LP" shows in the center display [4].
3. Push the TEMP SET button [3] to set the thermostat at "4-6" temperature setting.
4. The "LP" remains until you select a different operating mode or shut down the refrigerator.

Do a test of the gas safety valve:

1. Start up the refrigerator in the manual mode operation.
2. Open the lower intake vent.
3. Remove one wire from the solenoid of the gas safety valve at the rear of the refrigerator.
4. Within 30 seconds, the flame should extinguish. This means that the gas safety valve is operating correctly.
5. Put the wire back on the solenoid of the gas safety valve.
6. Close the lower intake vent.

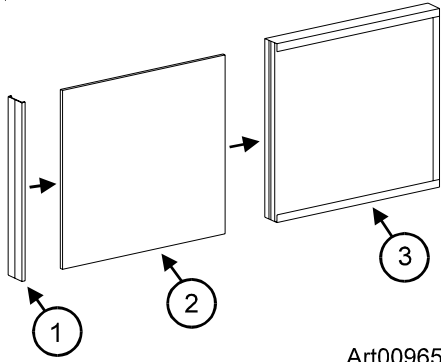
Shut down:

To shut down the refrigerator, push and hold the ON/OFF button for two seconds.

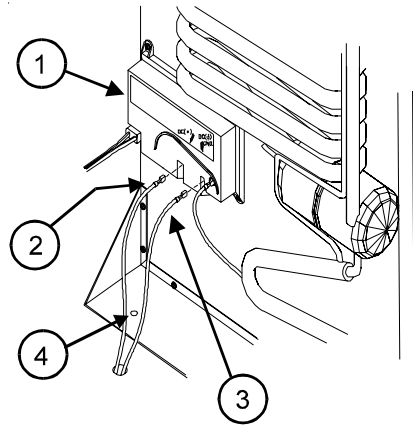
Fault Codes

Fault Codes	Fault Code Meaning	Corrective Actions
No display.	DC voltage is unavailable to the refrigerator control panel or the refrigerator is OFF.	Check: <ul style="list-style-type: none"> - That the refrigerator is ON. - That the battery charging equipment of the vehicle is operational. - That the AC/DC converter is operational (if applicable). - See your dealer or a Norcold authorized service center.
" dr " Audible alarm also.	The door was open for more than 2minutes.	Close the door.
" no " " FL " Audible alarm also.	The burner did not ignite or re-ignite.	Check: <ul style="list-style-type: none"> - That the valve of the propane gas tank(s) is open. - That the propane gas is at the correct pressure. - That the manual shut off valve of the refrigerator is open. - That there is no air in the propane gas supply line. See "Removing air from the propane gas supply lines" section of this manual. - See your dealer or authorized Norcold Service Center.
" no " " AC " Audible alarm also.	AC voltage is unavailable to the refrigerator control.	Check: <ul style="list-style-type: none"> - That the refrigerator plugged into a serviceable outlet. - That the fuse or circuit breaker of the vehicle is intact. - That the vehicle generator is operational (if applicable). - See your dealer or authorized Norcold Service Center.
" dc " " LO "	DC voltage to the refrigerator control panel is too low.	Check: <ul style="list-style-type: none"> - That the battery charging equipment of the vehicle is operational. - That the AC/DC converter is operational (if applicable). - See your dealer or authorized Norcold Service Center.
Temperature number flashes when TEMP SET button is pushed.	The refrigerator is operating on the "Back Up Operating System".	This is not owner serviceable. See your dealer or authorized Norcold Service Center.
" AC " " rE " Audible alarm also.	This is a fault within the refrigerator controls.	This is not owner serviceable. See your dealer or authorized Norcold Service Center.
" dc " " rE " Audible alarm also.	This is a fault within the refrigerator controls.	This is not owner serviceable. See your dealer or authorized Norcold Service Center.
" AC " " HE " Audible alarm also.	This is a fault within the refrigerator controls.	This is not owner serviceable. See your dealer or authorized Norcold Service Center.
" dc " " HE " Audible alarm also.	This is a fault within the refrigerator controls.	This is not owner serviceable. See your dealer or authorized Norcold Service Center.
" Sr " Audible alarm also.	This is a fault within the refrigerator controls.	This is not owner serviceable. See your dealer or authorized Norcold Service Center.

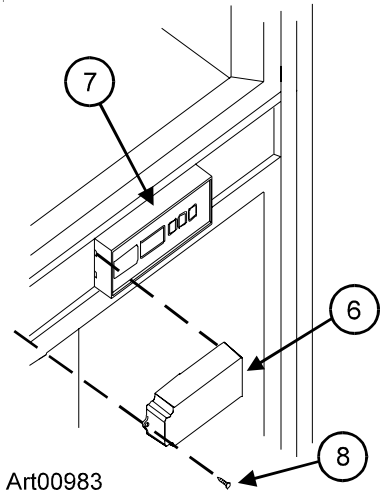
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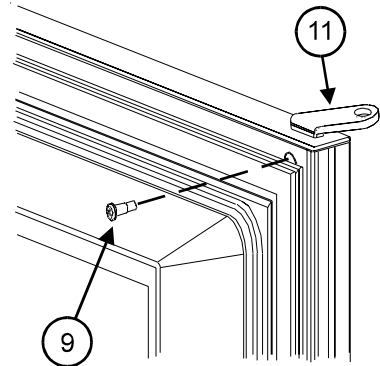
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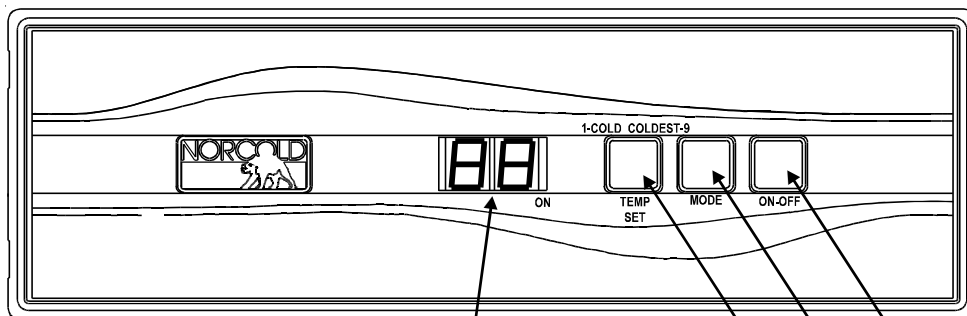
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Art00983



Art00985



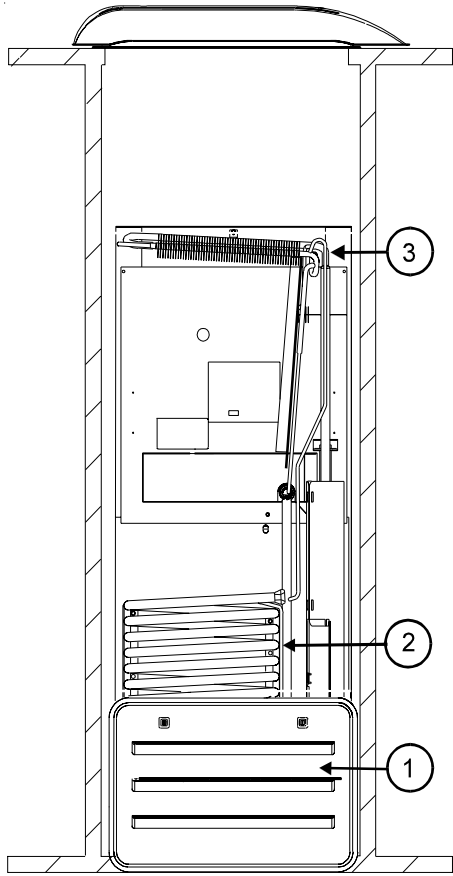
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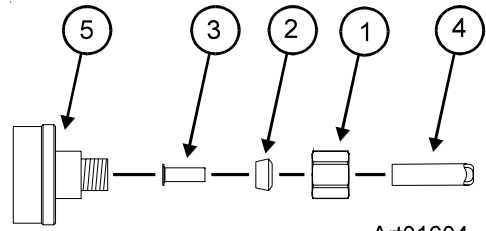
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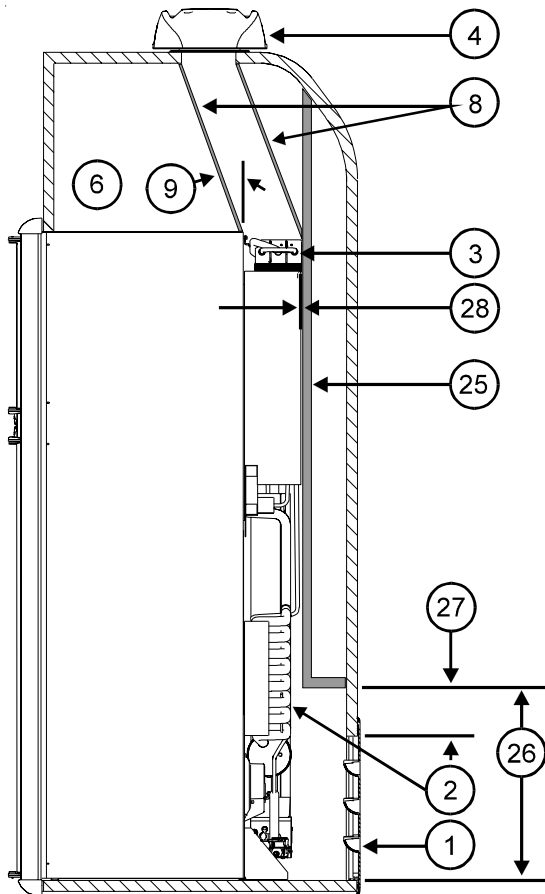
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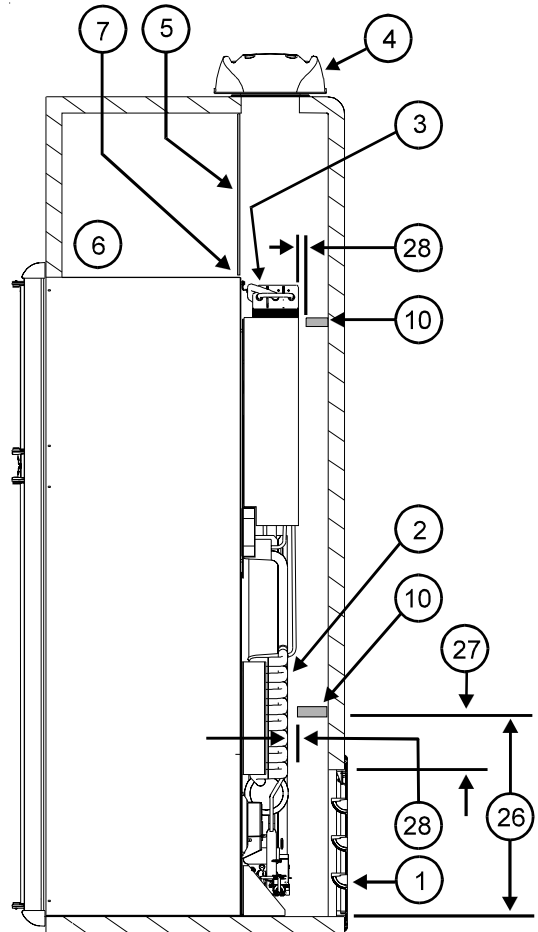
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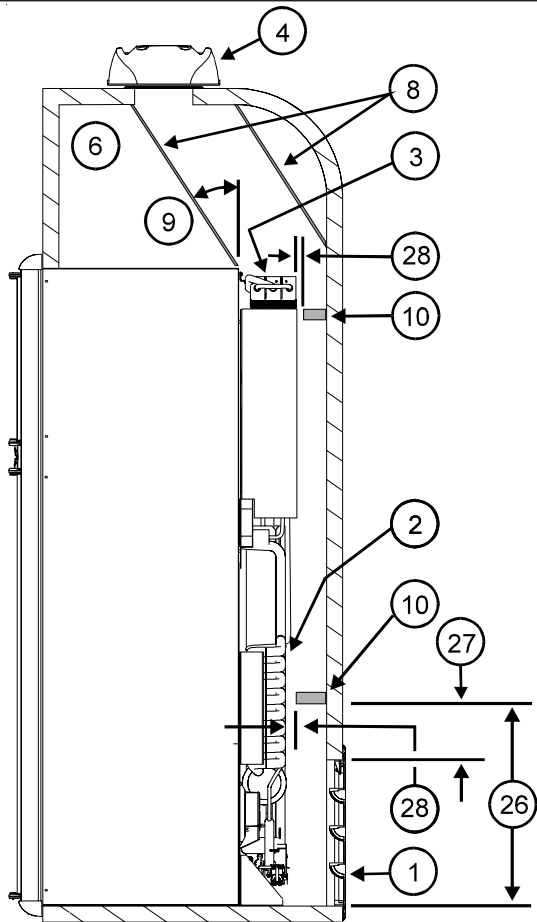
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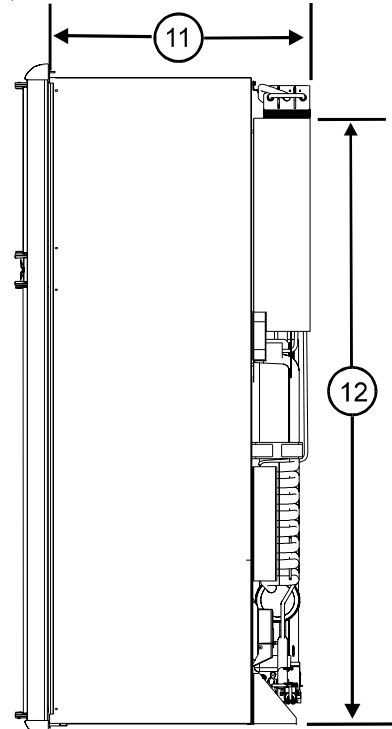
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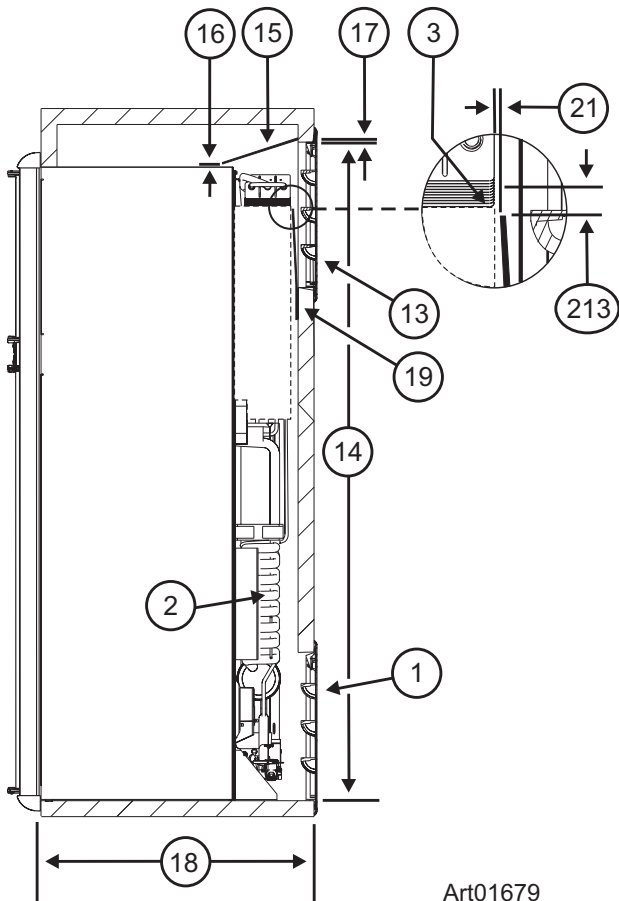
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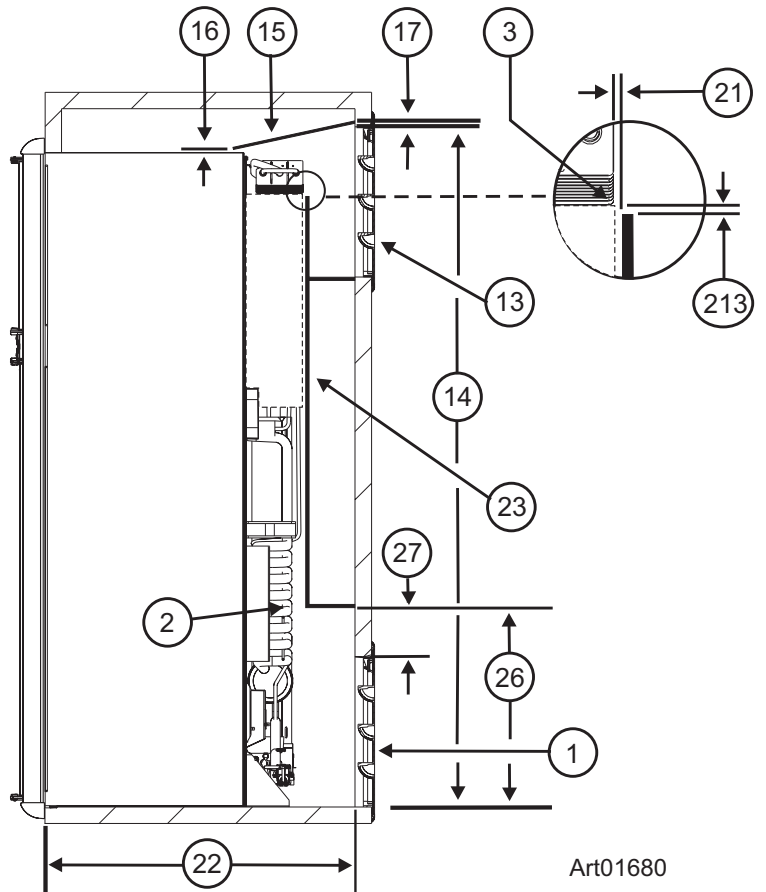
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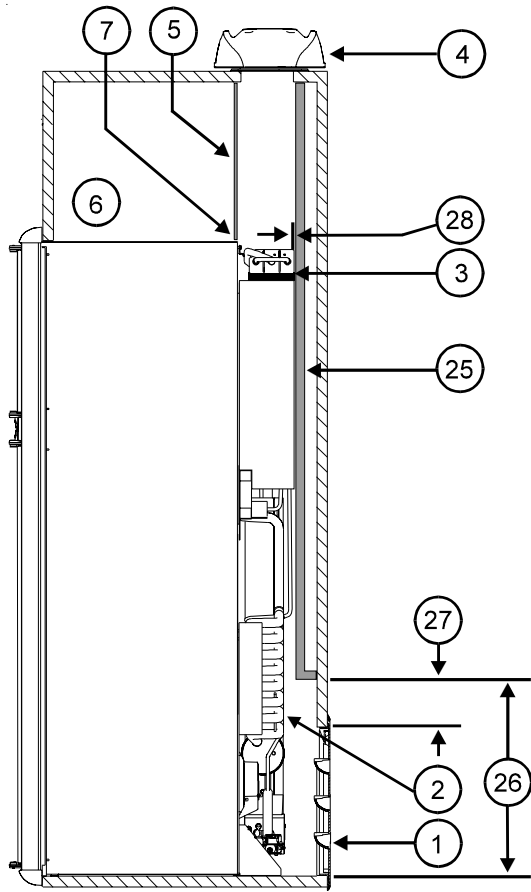
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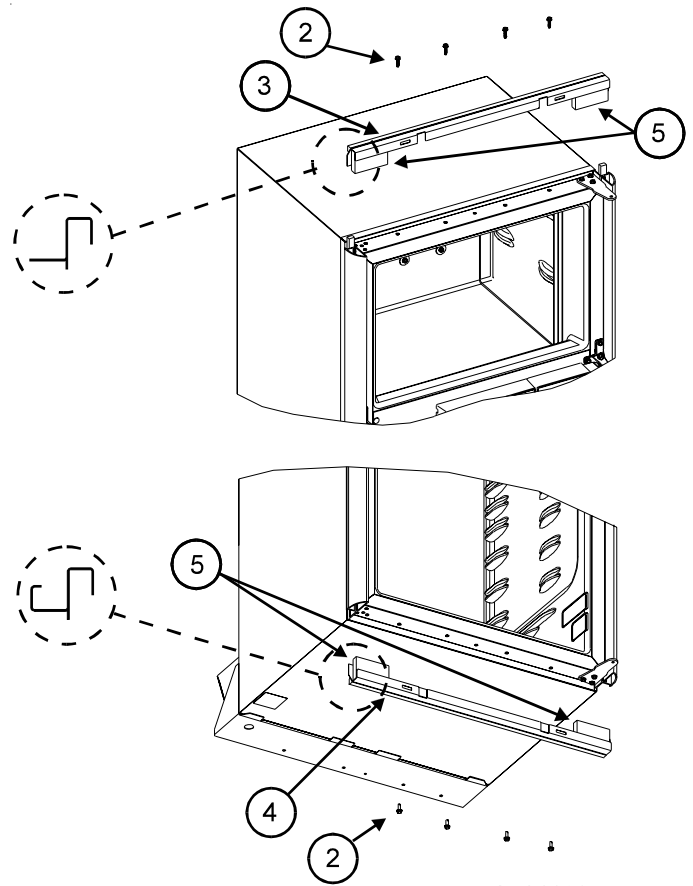
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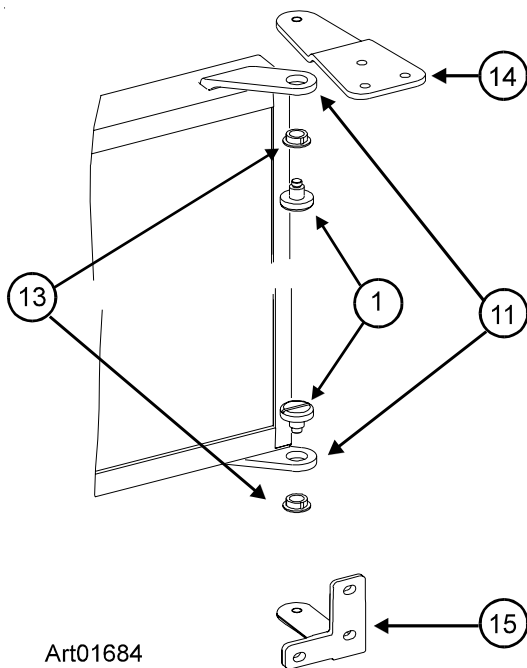
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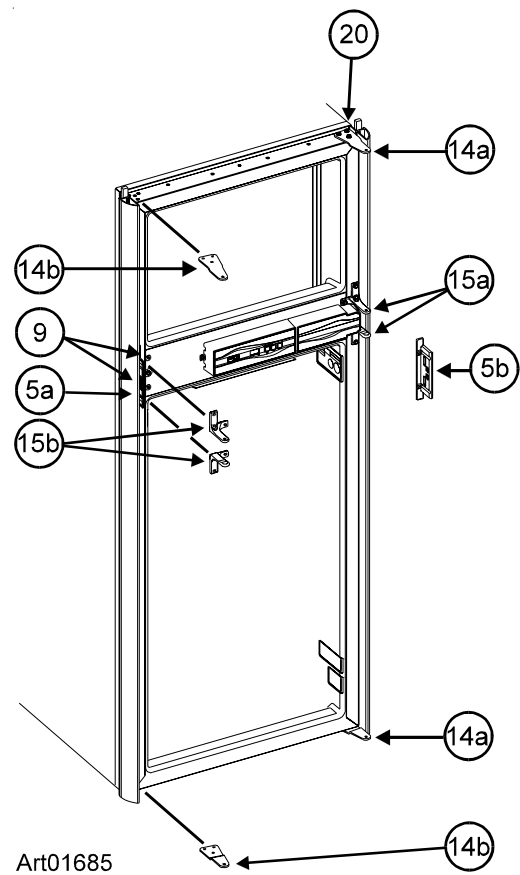
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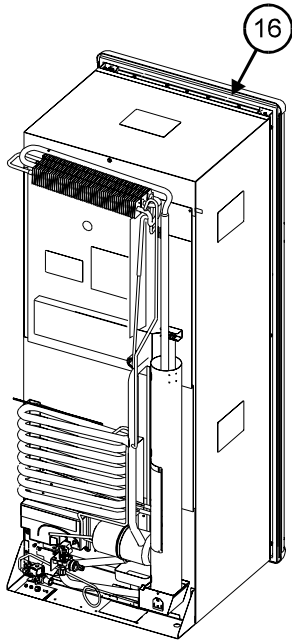
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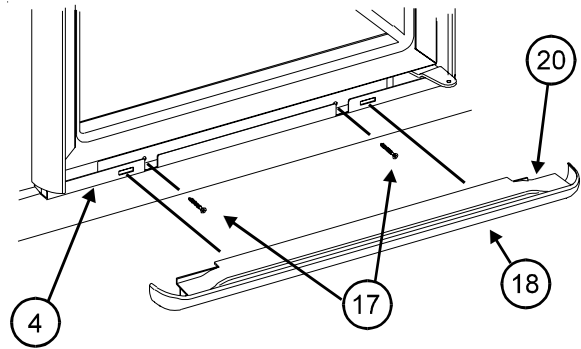
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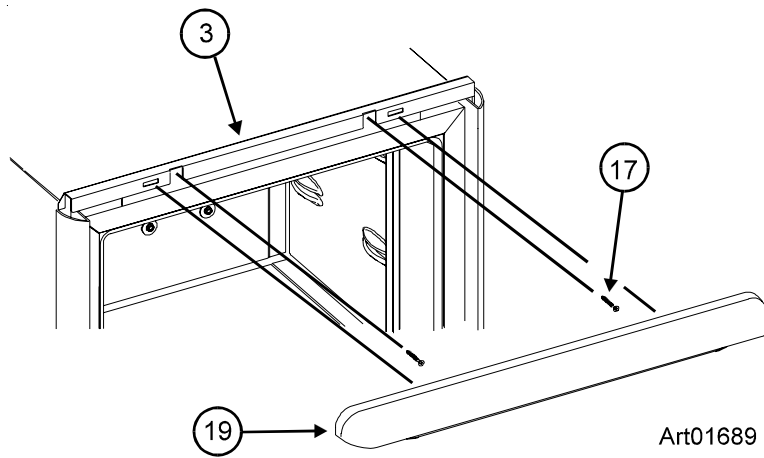
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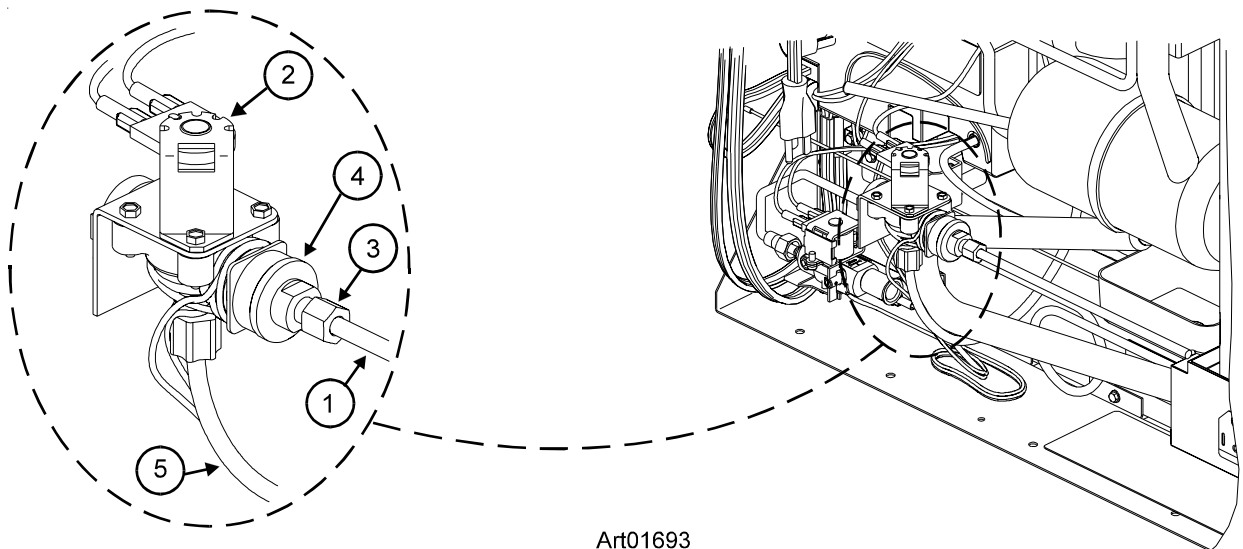
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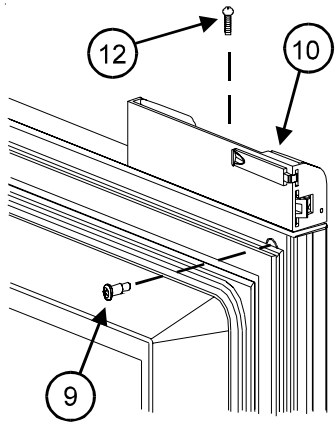
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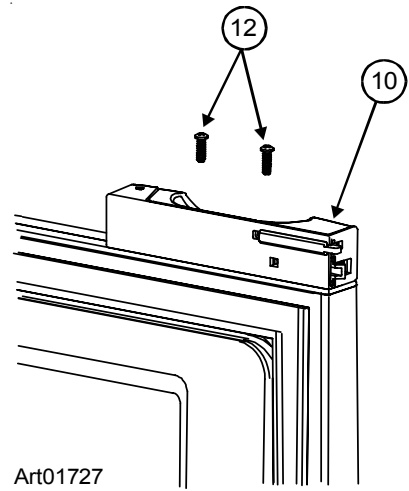
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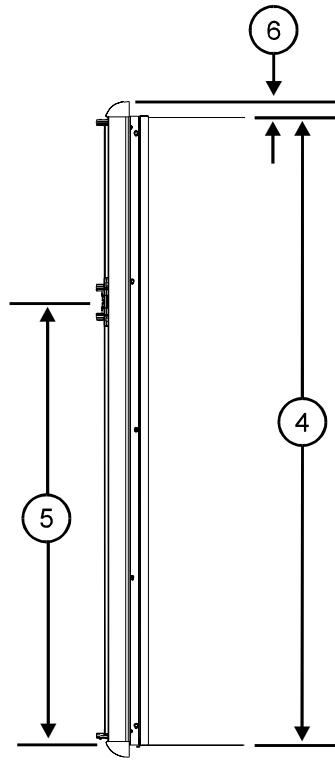
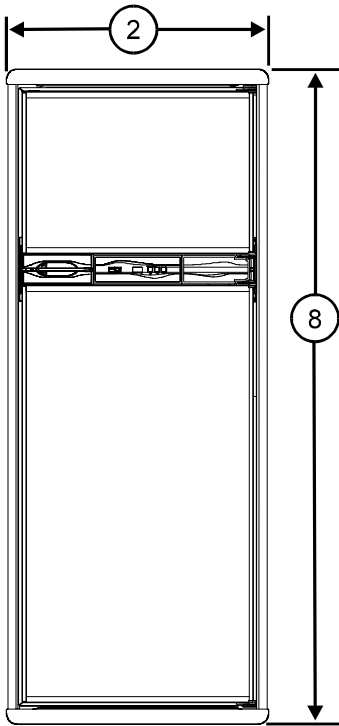
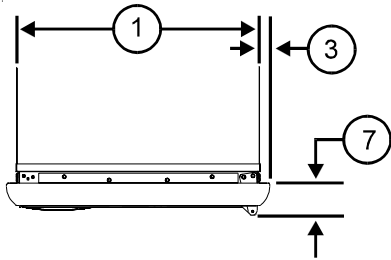
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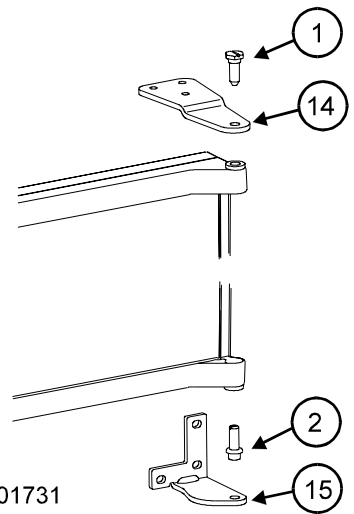
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