



The Signature of Quality®

INSTALLATION & OPERATION INSTRUCTIONS

ITR & ITRSS: Self-Contained & Remote Refrigerated

ITD, ITDSS, & ITDSSF: Non-Refrigerated



KEEP THIS MANUAL FOR FUTURE REFERENCE

Engineering and technical data are subject to change without notice

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A) SERIAL NUMBER RECORD & REGISTRATION

Thank you for purchasing a Federal Industries display case. This manual contains important instructions for installing and servicing the Refrigerated Self-Service Merchandisers. A repair parts list and wiring diagram are also included in the manual. Read all of these documents carefully before installing or servicing your case.

	WARNING Read this manual before installing or servicing the case. Keep this manual accessible and refer to it before performing any work on the equipment. Failure to follow these instructions could result in personal injury or damage to the case.
	WARNING Electrical components present a risk of shock, arc flash, or serious injury. Installation and service must be performed only by a licensed electrician. The component sections of this manual contain technical instructions intended for persons qualified to perform electrical work.
	DANGER Improper or faulty hookup of electrical components in this case can result in severe injury or death. All electrical wiring must be installed in accordance with all applicable local, regional, and national electrical codes and standards.

It is important to record the model and serial number of your merchandiser for warranty purposes and for accurate part identification. Please write them in the space provided below for quick reference.

Case Model _____ Serial Number _____

Register your product online! Visit our website at **www.federalindustries.com** and register your product today.

<https://federalind.com/support-service/contact-us/register-your-product>

We're committed to providing you with the best possible experience with your new product. While this manual covers the essential information you need, it cannot address every question or situation you may encounter. If you require additional assistance, please contact us:

WARRANTY/TECHNICAL SERVICE DEPARTMENT

Parts Town

1200 Greenbriar Dr.

Addison, IL 60101

Toll Free: (833) 238-8168

Email: techservice@partstown.com



Please refer to the SERVICE section of this manual and complete the pre-service checklist before contacting us. Providing this information in advance allows us to deliver the most efficient and effective support possible.

B) WARNING LABELS & SAFETY INSTRUCTIONS

	This is the DANGER–Flammable symbol. When you see this symbol on your case or in the manual, it indicates the presence of flammable materials or vapors. Be alert to the risk of fire or explosion.
	This is the safety-alert symbol. When you see this symbol on your case or in the manual, be alert to the potential for personal injury or damage to your equipment
	This is the notice symbol. When you see this symbol on your case or in the manual, it highlights important installation, operation, or service information. Ignoring these instructions may result in damage to the equipment or improper performance.

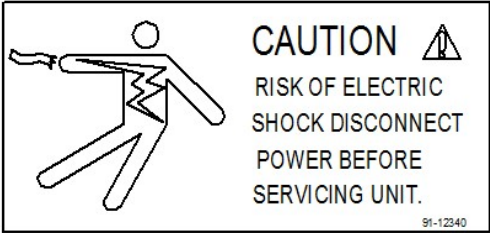
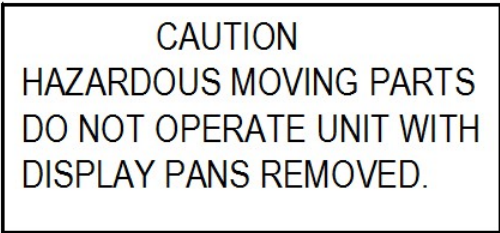
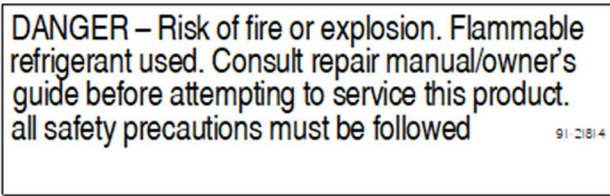
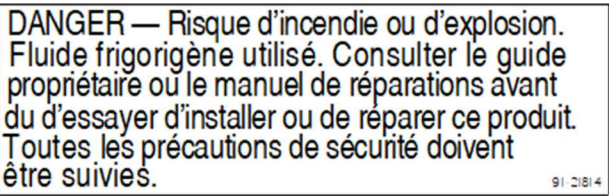
Be sure you understand all safety messages and always follow recommended precautions and safe operating procedures.

	NOTICE TO EMPLOYERS: It is your responsibility to ensure that all individuals who install, operate, or service this equipment are trained, qualified, and fully understand all applicable safety information, instructions, and procedures.
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Important safety information is presented in this section and throughout the manual. The following signal words are used in the warning and safety messages:

SYMBOL	SIGNAL WORD	DEFINITION
	DANGER	Severe injury or death will occur if you ignore the message.
	WARNING	Severe injury or death can occur if you ignore the message.
	CAUTION	Minor injury or damage to your case can occur if you ignore the message.
	NOTICE	Important information. Damage to the equipment may occur. Poor performance may occur.

The warning and safety labels shown throughout this manual are placed on your Federal Industries case at the factory. Follow all warning label instructions. If any warning or safety labels become lost or damaged, call our customer service department at (800) 356-4206 for replacements.

LABELS & LOCATIONS	
 This label is located on the back of the display case	 This label is located below the display pan.
 This label is located by condensing unit	

C) REFRIGERATION WARNING

INSTALLATION-REPAIR-DECOMMISSIONING

Be sure you understand all safety messages and always follow recommended precautions and safe operating procedures.



DANGER

Risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing. Dispose of properly in accordance with federal or local regulations.

Consult repair manual/owner's guide before attempting to service this product. All safety precautions must be followed.

Follow handling instructions carefully in compliance with national regulations.

Auxiliary devices which may be ignition sources shall not be installed in the ductwork, other than auxiliary devices listed for use with the specific appliance.

Do not store explosive substances (such as aerosol cans with a flammable propellant) in this case.

Do not use an electrical appliance INSIDE the food storage compartments unless its type is recommended by manufacturer.

Flammable refrigerant type specified on case nameplate is on the serial label.

APPLIES TO R290 REFRIGERANT MODELS ONLY! Contains a charge of R290 refrigerant with a lower flammability limit (LFL) of .038kg/m³. See data plate for amount of charge.

APPLIES TO R454C REFRIGERANT MODELS ONLY! Contains a charge of R454C refrigerant with a lower flammability limit (LFL) of .0.286kg/m³. See data plate for amount of charge.

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

MISE EN GARDE

- Ne pas utiliser de moyens autres que ceux recommandés par le fabricant pour accélérer le processus de dégivrage ou pour nettoyer l'appareil.
- L'appareil doit être entreposé dans un local ne contenant pas de sources d'inflammation permanentes (flammes nues, appareil à gaz ou dispositif de chauffage électrique en fonctionnement, par exemple).
- Ne pas percer ou brûler.
- Attention, les fluides frigorigènes peuvent ne pas dégager d'odeur.

1. Qualification:

All refrigeration and electrical maintenance, service, and repair must be performed by a Certified Technician that is trained in the required flammable refrigerants safety procedures. Technicians must read the entire section

REFRIGERATION WARNING section of this manual.

Work requiring qualification includes but is not limited to the following:

- a. breaking into the refrigerating circuit.
- b. opening of sealed components.
- c. opening of ventilated enclosures.

2. Required Safety Checks:

Prior to beginning work on systems containing FLAMMABLE REFRIGERANTS, perform the following safety checks to ensure that the risk of ignition is minimized prior to conducting work on the system.

- ☐ Discharge all capacitors using safe, non-sparking method to prevent accidental arcing.
- ☐ Ensure no live electrical components or wiring are exposed during charging, recovering or purging.
- ☐ Confirm continuity of earth bonding.
- ☐ Ensure all personnel (direct, contracted, etc.) in the area are informed of the nature of the work being performed.
- ☐ Ensure the work area is open or adequately ventilated.
 - Ensure ventilation is maintained during work.
 - Ventilation should disperse any released refrigerant and preferably discharge it externally to atmosphere.
 - Work in confined spaces shall be avoided.
- ☐ Survey the surrounding area to ensure there are NO flammable hazards, ignition sources, or other unsafe conditions present.
 - All possible ignition sources, including cigarette smoking, shall be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can potentially be released to the surrounding area.
 - “NO Smoking” signs shall be posted and visible.
- ☐ Check the area with an appropriate refrigerant detector prior to and during work to ensure the technician is aware of potentially toxic or flammable vapors.
 - Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants (e.g., non-sparking, adequately sealed, or intrinsically safe)
 - NOTE: The use of silicon sealants can inhibit the effectiveness of some types of leak detection equipment.
- ☐ Work shall follow a controlled procedure that prevents release or accumulation of flammable gas or vapor throughout the process.
- ☐ No person performing work to or near a REFRIGERATION SYSTEM that 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.
- ☐ Verify the actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed.

- ☐ Verify the ventilation machinery and outlets are operating adequately and are not obstructed.
- ☐ Verify markings on the equipment continue to be visible and legible.
 - Markings and signs that are illegible shall be corrected.
- ☐ Verify refrigerating pipes and components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing

3. Hot Work Controls

If any hot work is to be conducted on the refrigerating equipment or any associated parts,

- ☐ Recover or isolate refrigerant prior to beginning hot work (See part 8 of this section)
- ☐ Appropriate fire extinguishing equipment shall be made readily available before starting work.
- ☐ A dry chemical or CO2 fire extinguisher should be adjacent to the charging area.
- ☐ The area shall be adequately ventilated before and during any hot work to safely disperse any released refrigerant.

4. Electrical Components

- ☐ Electrical components being changed shall be suitable for the purpose and to the correct specification so as to minimize the risk of possible ignition due to incorrect parts.
 - At all times, the manufacturer's maintenance and service guidelines shall be followed.
 - If in doubt, consult the manufacturer's technical department for assistance.
- ☐ If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily resolved. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution should be used.

5. Repairs to sealed components

- ☐ During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc.
 - If it is necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
- ☐ Measures shall be taken to ensure that work on electrical components does not alter the casing in such a way that it compromises its level of protection. This includes preventing:
 - Damage to cables;
 - Excessive number of connections;
 - Terminals not made to original specification;
 - Damage to seals;
 - Incorrect fitting of glands;
 - etc.
- ☐ Ensure that the apparatus is mounted securely.
- ☐ Ensure that seals or sealing materials have not degraded to the point that they no longer prevent the egress of flammable vapors.

- ☐ Replacement parts shall be in accordance with the manufacturer's specifications.

6. Repairs to intrinsically safe components

Note: Intrinsically safe components do not have to be isolated prior to working on them

- ☐ Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
- ☐ Replacement parts shall be in accordance with the manufacturer's specifications to ensure that the risk of ignition is minimized,

7. Safe Detection of flammable refrigerants:

Under no circumstances shall potential ignition sources be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems:

- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity might not be adequate or might need recalibration.
 - o Detection equipment shall be calibrated in a refrigerant-free area.
 - o Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
 - o Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipework. Examples of leak detection fluids are
 - o bubble method,
 - o fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all the refrigerants shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

8. Removal and Evacuation:

Prior to breaking into the refrigerant circuit for any purpose, the following procedure shall be adhered to due to the added flammability risk:

- a. Safely remove refrigerant following local and national regulations.
- b. Purge the circuit with oxygen-free nitrogen (OFN).
- c. Evacuate (optional for R454C).
- d. Purge the circuit with oxygen-free nitrogen (OFN) (optional for R454C).
- e. Open the circuit by cutting or brazing.

- The refrigerant shall be recovered into the correct recovery cylinders.
- Due to use of 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.
 - o Compressed air or oxygen shall not be used for purging flammable 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 R454C). This process shall be repeated until no refrigerant is within the system (optional for R454C). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.
- Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

9. Charging procedures:

In addition to conventional charging procedures, the following requirements shall be followed.

- ☐ Ensure that contamination of different refrigerants does not occur when using charging equipment.
- ☐ Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- ☐ Cylinders should be kept in an appropriate position according to the instructions.
- ☐ Ensure that the REFRIGERATING SYSTEM is earthed prior to charging the system with refrigerant.
- ☐ Label the system when charging is complete (if not already).
- ☐ Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

10. Decommissioning:

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task commences.

- a. Become familiar with the equipment and its operation.
- b. Isolate the system electrically.
- c. Before attempting the procedure, ensure that:
 - i. Mechanical handling equipment is available, if required, for handling refrigerant cylinders.
 - ii. All personal protective equipment is available and is being used correctly.

- iii. The recovery process is supervised at all times by a competent person.
 - iv. Recovery equipment and cylinders conform to the appropriate standards.
- d. Pump down the refrigerant system, if possible.
 - e. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
 - f. Make sure that the cylinder is situated on the scales before recovery takes place.
 - g. Start the recovery machine and operate in accordance with instructions.
 - h. Do not overfill cylinders (no more than 80% volume liquid charge).
 - i. Do not exceed the maximum working pressure of the cylinder, even temporarily.
 - j. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from the site properly and all isolation valves on the equipment are closed off.
 - k. Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

11. Labeling:

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

12. Recovery:

When removing the refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valve in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect coupling and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

D) GENERAL ELECTRICAL & GROUNDING



DANGER

Improper or faulty hookup of electrical components in the display case can result in sever injury or death



Important: Read Section REFRIGERATION WARNING INSTALLATION-REPAIR-DECOMMISSIONING” of this manual starting on page 9.

All refrigeration and electrical work shall be performed by certified technicians.

SELF CONTAINED					
MODEL	VOLTAGE	PERMANENT CONNECTED AMPS	CORD CONNECT AMPS/NEMA PLUG	COMPRESSOR LRA	
ITR3626 & ITR3634	120V/60H/1PH	MIN CIRCUIT AMPACITY12.4/ MAX FUSE SIZE 20	TOTAL AMPS 12.4 / 5-20	TOTAL AMPS 12.4 / 5-20	
ITR4826 & ITR4834	120V/60H/1PH	MIN CIRCUIT AMPACITY12.4/ MAX FUSE SIZE 20	TOTAL AMPS 12.4 / 5-20	TOTAL AMPS 12.4 / 5-20	
ITR6026 & ITR6034	120V/60H/1PH	MIN CIRCUIT AMPACITY12.4/ MAX FUSE SIZE 20	TOTAL AMPS 12.4 / 5-20	TOTAL AMPS 12.4 / 5-20	
ITRSS3626 & ITRSS3634	120V/60H/1PH	MIN CIRCUIT AMPACITY12.4/ MAX FUSE SIZE 20	TOTAL AMPS 12.4 / 5-20	TOTAL AMPS 12.4 / 5-20	
ITRSS4826 & ITRSS4834	120V/60H/1PH	MIN CIRCUIT AMPACITY12.4/ MAX FUSE SIZE 20	TOTAL AMPS 12.4 / 5-20	TOTAL AMPS 12.4 / 5-20	
ITRSS6026 & ITRSS6034	230/60H/1PH	MIN CIRCUIT AMPACITY 9.2/ MAX FUSE SIZE 15	TOTAL AMPS 9.2 / 6-15	TOTAL AMPS 9.2 / 6-15	

REMOTE		
MODEL	VOLTAGE	PERMANENT CONNECTED AMPS
ITR3626 & ITR3634 ITRSS3626 & ITRSS3634	NOT AVAILABLE	
ITR4826 & ITR4834 ITRSS4826 & ITRSS4834	120V/60H/1PH	MIN CIRCUIT AMPACITY 15/ MAX FUSE SIZE 15
ITR6026 & ITR6034 ITRSS6026 & ITRSS6034	120V/60H/1PH	MIN CIRCUIT AMPACITY 15/ MAX FUSE SIZE 15

DRY NON REFRIGERATED			
MODEL	VOLTAGE	PERMANENT CONNECTED AMPS	CORD CONNECT AMPS/NEMA PLUG
ITD3626 & ITD3634 ITDSS3626 & ITDSS3634 ITDSS3626F & ITDSS3634F	120V/60H/1PH	MIN CIRCUIT AMPACITY 15/ MAX FUSE SIZE 15	TOTAL AMPS 2.0 / 5-15
ITD4826 & ITD4834 ITDSS 4826 & ITDSS4834 ITDSS4826F & ITDSS4834F	120V/60H/1PH	MIN CIRCUIT AMPACITY 15/ MAX FUSE SIZE 15	TOTAL AMPS 2.0 / 5-15
ITD6026 & ITD6034 ITDSS6026 & ITDSS 6034 ITRSS6026F & ITRSS6034F	120V/60H/1PH	MIN CIRCUIT AMPACITY 15/ MAX FUSE SIZE 15	TOTAL AMPS 2.0 / 5-15

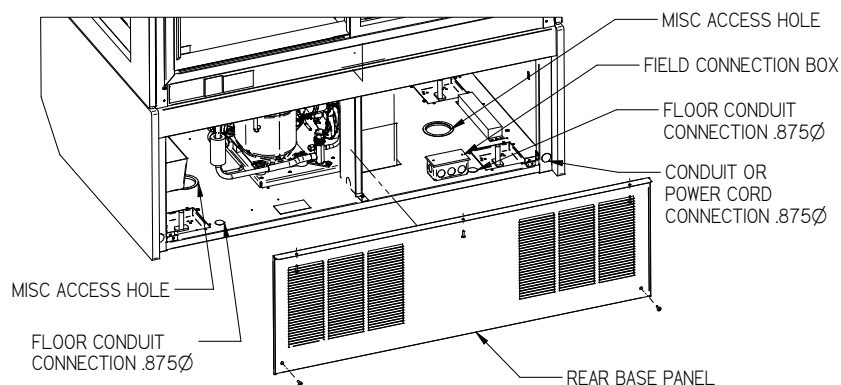
1 REF. E3788 EXCEL FILE

Refrigerated Permanent Connected

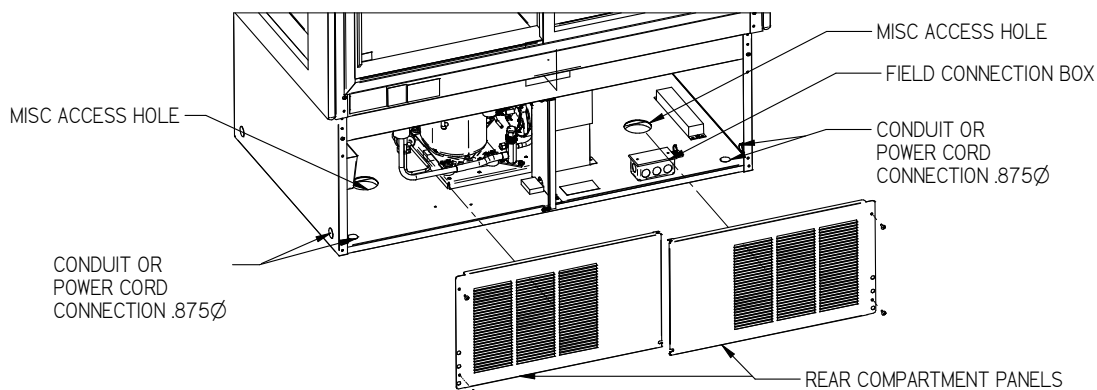
- Only a licensed electrician shall perform all case electrical connections.
- All electrical wiring connections shall be done in accordance with all applicable local, regional, and/or national electrical standards.
- A separate circuit for each display case is required to prevent other appliances on the same circuit from overloading the circuit and causing malfunction.
- The electrical service must be grounded upon installation.

- See the electrical data plate located at the rear of the case for proper circuit size and wire ampacity.
- The electrical connection box is accessible from the rear of the case with rear grill removed. See grill removal section of this manual for grill removal procedure.

Refrigerated Floor Models:



Refrigerated Counter Models:



Refrigerated Cord Connected (OPTION)



CAUTION

Risk of Electric Shock. If the cord or plug becomes damaged, replace only with a cord and plug of the same type.

- A factory installed optional power cord is properly sized to the amperage requirements of the case. See the electrical data plate located on the rear exterior of the case for the proper circuit size for each case.
- The cord is factory installed protruding from the rear corner of the case as noted in above drawings.

- A separate circuit for each display case is required to prevent other appliances on the same circuit from overloading the circuit and causing malfunction.

Non-Refrigerated Cord Connected (STANDARD)

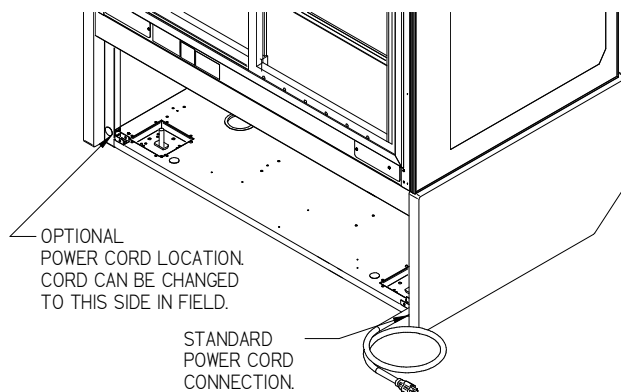


CAUTION

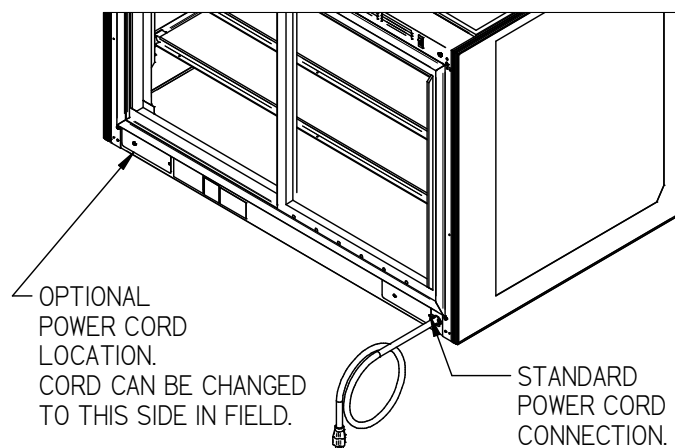
Risk of Electric Shock. If the cord or plug becomes damaged, replace only with a cord and plug of the same type.

- A factory installed power cord is properly sized to the amperage requirements of the case. See the electrical data plate located on the rear exterior of the case for the proper circuit size for each case.
- The cord is factory installed protruding from the rear corner of the case as noted in below drawings.
- A separate circuit for each display case is required to prevent other appliances on the same circuit from overloading the circuit and causing malfunction.
- Only a licensed electrician can move the electrical cord connections to opposite end of case as shown in drawings below.

Non-Refrigerated Floor Models:



Non-Refrigerated Counter Models:



E) REFRIGERATED MODEL & COMPONENT DESCRIPTIONS

Self-Contained Models

The self-contained models are shipped from the factory with a completely operational R290 refrigeration system and require no modifications or adjustments upon installation. Case must be installed as per the installation section of this manual to provide proper condensing air cooling.

The dual pressure control is used as a safety device and is factory set. The pressure control works on a differential. The low-pressure side is to protect the compressor in the case of refrigerant loss. The high-pressure side is to protect from system failure causing too high of system pressure.

Note: The condenser fan runs continuously.

This unit also has a defrost timer that will shut the compressor off a set number of times per day to ensure a full defrost occurs. The compressor will remain off until the either the off time is reached or until the temperature sensor on the coil reaches a set temperature, which ever happens first.

Self-Contained Refrigeration Operation

The unit temperature is controlled by an electronic control that senses air temperature and turns refrigeration on and off as required to maintain proper temperature.

The electronic control will also sense a frosted coil that requires a defrost cycle and shuts off refrigeration until defrost is complete. There are also a defined number of scheduled defrosts that also shut the refrigeration off to ensure a full defrost.

Remote Models

MODEL	REFRIGERANT	REFRIGERATION	PRESSURE CUT IN	PRESSURE CUT OUT
ITR3626R	N/A	N/A	N/A	N/A
ITR3634R				
ITRSS3626R				
ITRSS3634R				
ITR4826R	R454C	3400 BTUH @ 90F/20F	60 LBS	20 LBS
ITR4834R				
ITRSS4826R				
ITRSS4834R				
ITR6026R	R454C	4200 BTUH @ 90F/20F	60 LBS	20 LBS
ITR6034R				
ITRSS6026R				
ITRSS6034R				

Use pressure gauges to set pressure control.

Remote Refrigeration Operation

Remote models use R454C refrigerant and ship from the factory with the evaporator coil, expansion valve, and refrigerant solenoid valve. The required high-low-pressure control and remote condenser can be provided as a factory option and will be required to be charged with refrigerant after installation.

The unit temperature is controlled by an electronic control that senses air temperature and opens and closes the refrigerant solenoid valve as required to maintain proper temperature.

Once proper temperature is reached the solenoid valve closes and shuts off the refrigeration flow to the unit and initiates a pump down cycle. This will allow the remote low-pressure switch to open and shut off the remote compressor. The solenoid will remain closed until the electronic control probe reaches its “cut in” set point. The electronic control will also sense a frosted coil that requires a defrost cycle and closes the solenoid until defrost is complete. There are also a defined number of scheduled defrosts that also ensure a full defrost occurs.

Condensate Evaporator Pan and Pump

Condensate Evaporator (Standard Self-Contained Models)

	NOTICE During normal defrost cycles, steam from the condensate evaporator may be visible around the case.
---	--

The standard Self-Contained case is furnished with an electric condensate evaporator. Plumbing connections are not required.

The condensate evaporator can be removed from the case and the condensate drain can be plumbed to a drain to conserve energy if desired. Disconnect the condensate evaporator wires at the condensate evaporator to remove. This must be done by a qualified electrician.

Make sure that the drain line has not been dislodged during shipment and that the drain trap terminates properly over the water reservoir.

Condensate Pump (Standard Remote, Optional Self Contained)

	NOTICE This unit could be shipped with a condensate pump. The pump has a float that turns the pump on automatically when needed. The pump is mounted in the base compartment. The pump should be cleaned and inspected every 3-4 months.
---	--

When unit is shipped with a condensate pump, a condensate discharge hose is supplied from factory. This hose must be run to a nearby drain. When the condensate pan is full the pump will turn on and pump water out condensate drain hose. Note Drain hose can be run in vertical direction but must not exceed height of 15 feet.

	NOTICE There is a piece of cardboard that MUST be removed from the side of the pump to free up the float. If this is not done, the pump will not turn on and the pan will overflow.
--	---

Electronic Expansion Valve (EEV)

A traditional TXV uses springs and a temperature bulb to open and close a valve port that controls the flow of refrigerant entering the evaporator coil. An electronic expansion valve (EEV) controls the refrigerant flow much more precisely, increasing the performance and efficiency of the refrigeration system. The EEV controls the flow of Refrigerant by opening and closing the valve port based on the response to signals sent to the EEV by an electronic controller. The electronic Control bases these signals by processing information provided from a temperature sensor and pressure transducer located on the discharge side of the evaporator coil.

These sensors monitor the evaporator superheat and protect the compressor from any liquid flood back under low superheat conditions.

EEV Controller Settings

The electronic expansion valve controller also allows the use of different types of refrigerants without the need to change the expansion valve.

The controller is set from the factory to run on 454C refrigerant (code 54C) and will not need to be changed unless another refrigerant is used. NOTE: On units with older model EEV's, the EEV is set to code 40C.

Note: Check your State and Local regulations for approved refrigerants for your install location. Federal Industries is not liable for any alternate refrigerants used.

The control is located in the rear center of the base.

Note: Never change any of the other setting other than the refrigerant type. It may also be necessary to change the superheat setting only when using a different refrigerant.



Indicator lights	
	Red light - critical alarm (system is NOT running)
	Yellow light - non-critical alarm (system running)
	Green light - compressor on
	Green blinking - compressor waiting on timer to start/stop

Changing Refrigerant

- 1) Access the set point mode by pressing and holding the **ENTER** button until Ctl displays on the screen.
- 1) Use the up or down arrows to advance through the available set points until rFG displays on the screen and press the **ENTER** button.
- 2) Use the up or down arrows until the desired refrigeration displays on the screen and press and hold the **ENTER** button until rFG once again displays on the screen.
- 3) Press the **BACK** button to return to the main menu.

Changing Superheat

- 1) Access the set point mode by pressing and holding the **ENTER** button until Ctl displays on the screen.
- 1) Use the up or down arrows to advance through the available set points until SSP displays on the screen and press the **ENTER** button.
- 2) Use the up or down arrows to set the desired superheat displays on the screen and press and hold the **ENTER** button until SSP once again displays on the screen.
- 3) Press the **BACK** button to return to the main menu.

Refrigerant detection and mitigation system

The refrigerant detection system (RDS) shuts down the operation of the refrigerator when a leak is detected. The system is comprised of 2 or more sensors, a low voltage power supply, 1-2 safety shutoff solenoid valves, and 1-2 refrigerant check valves.

When a leak is detected by one of the sensors, the internal sensor relay opens to shut off the safety solenoid valve(s). The refrigeration check valve prevents any back flow from the rest of the external system from entering the unit that would further contribute to a leak.

The sensor is equipped with an LED status light, indicating the Refrigerant Detection System's status, as shown below:



Please note that once a leak is detected and the flow of refrigerant is stopped, the display case will stop cooling, and any temperature sensitive products must be removed from the unit.

This display case's fans are a part of the leak mitigation system and are required to remain powered on as long as there is power to the display case. In the event of a refrigerant leak, the unit's fans are required to run to reduce the concentration of flammable refrigerant in and around the unit. When replacing gas detection sensors, **ONLY** replace with the original model of sensor provided by Federal.

To replace a faulty sensor, simply unplug the electrical quick connection and unscrew the sensor fasteners and attach the new sensor to the original sensor location in the original orientation.

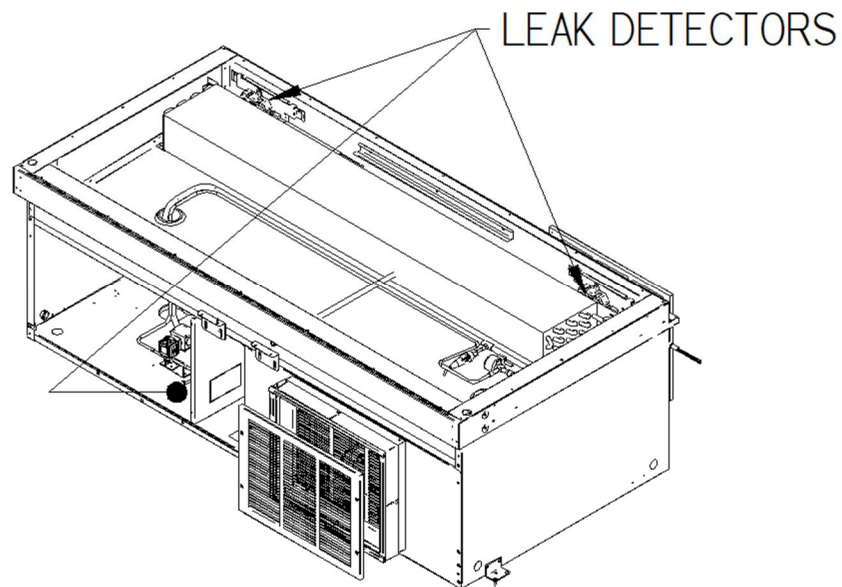
After replacing installing the new sensor, power on the display case. After a few seconds, the sensor light will begin to blink green. (See illustration above) The refrigeration system will be allowed to run as normal.

The sensor is capable of a long life and will monitor its condition to ensure functionality. If the sensor's self-monitoring system detects an issue it will go into a fault state and shut off the flow of refrigerant to the appliance. See above illustration for fault indication on LED.

The gas inlet exposes the sensing element of the sensor to surrounding gases. The opening in the sensor housing exposes the humidity and temperature sensors inside the sensor to the environment and makes them susceptible to pollutants such as volatile chemicals, acids, bases, cleaning and foaming agents. Exposure to those pollutants should be avoided. Cleaning products might damage the sensor or temporarily block its gas inlet, inhibiting or delaying the response to the refrigerant.

The use of solvent emitting materials near the sensor, such as PVC cement glues, may lead to nuisance trips. Solvent emitting materials can lead to high concentrations of volatile gas in the nearby environment. The gas sensor may sense these concentrations, and trigger a system mitigate response. Please note that the safety shut-off valve system is installed at the factory. No safety shut-off valves are required to be installed in the field on new equipment.

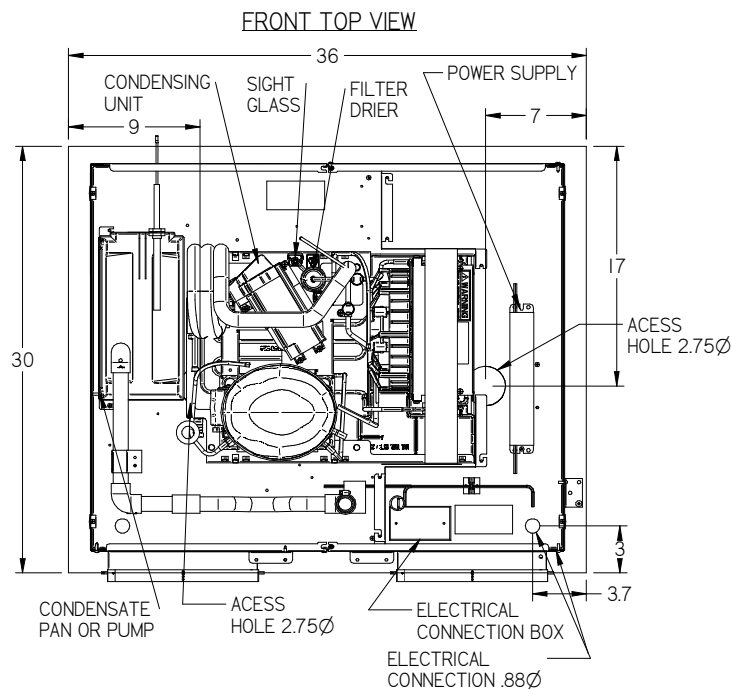
On ALL ITR remotes, there are 3 leak sensors: 1 in the base compartment and 2 in the tub behind the evaporator coil. Example locations shown below.

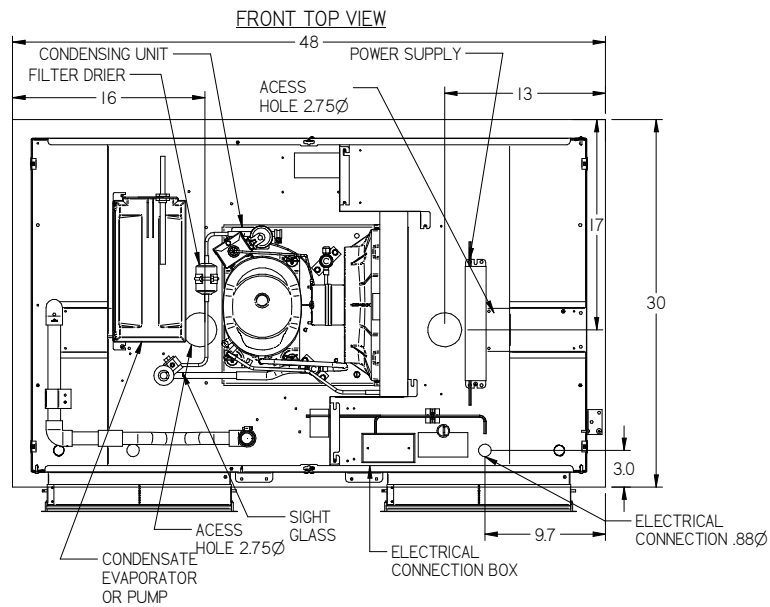
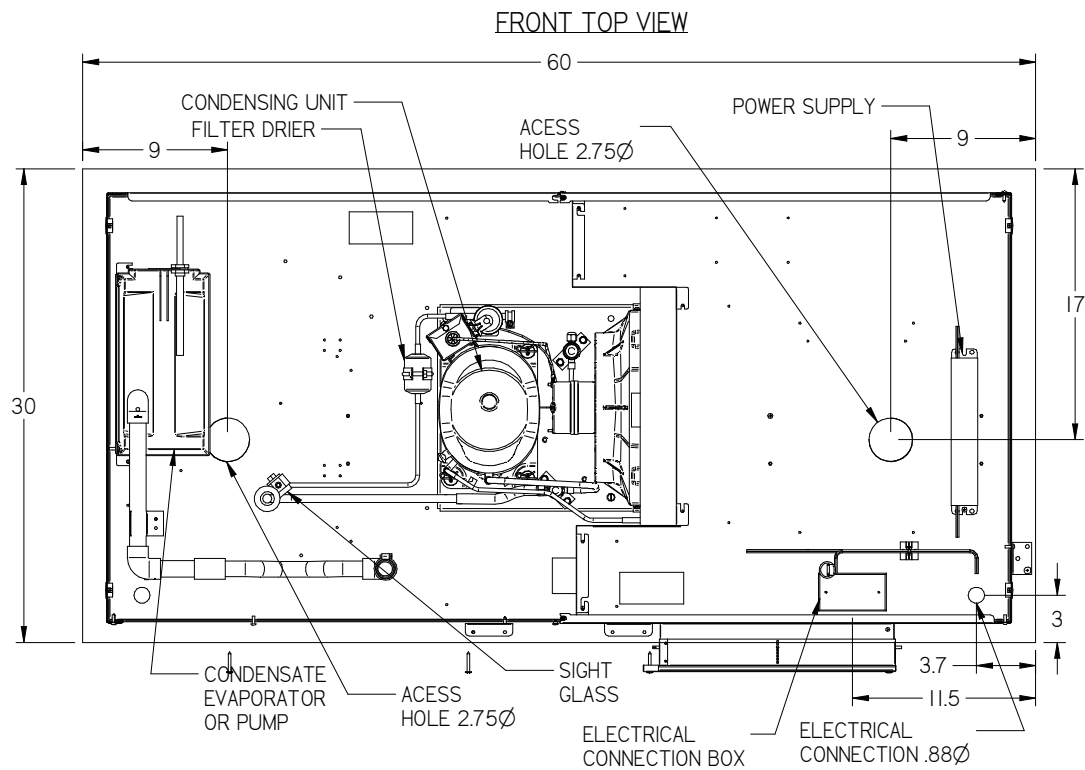


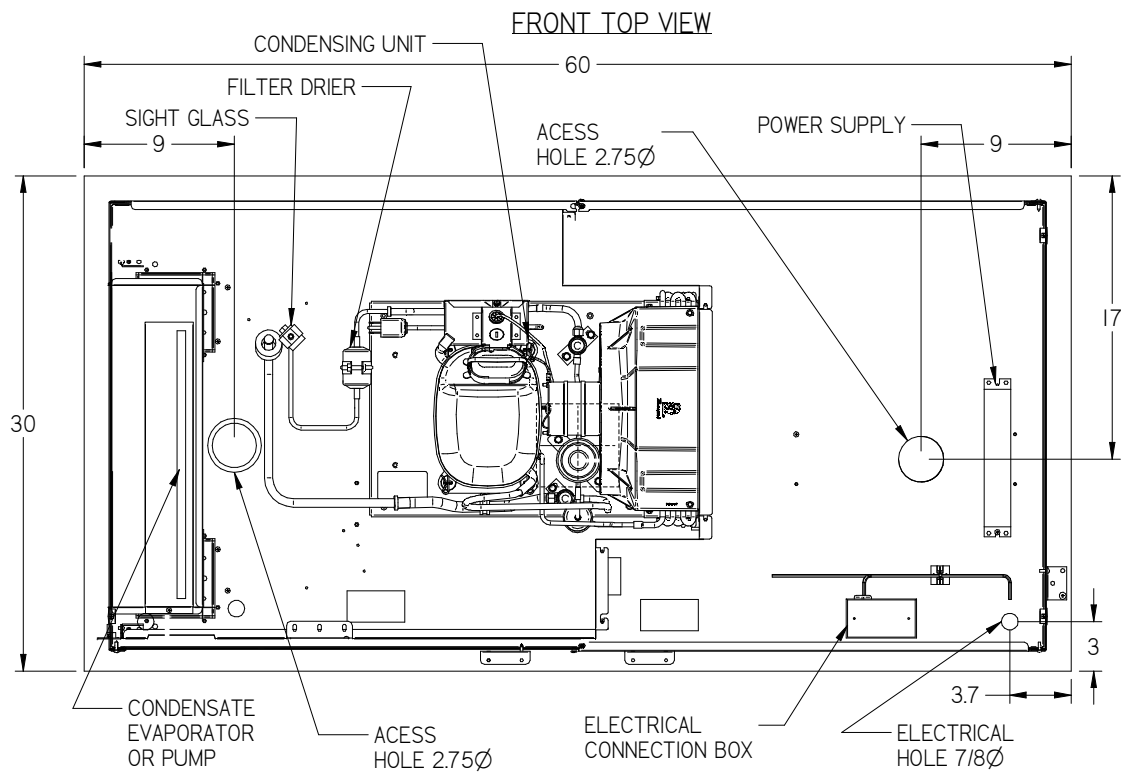
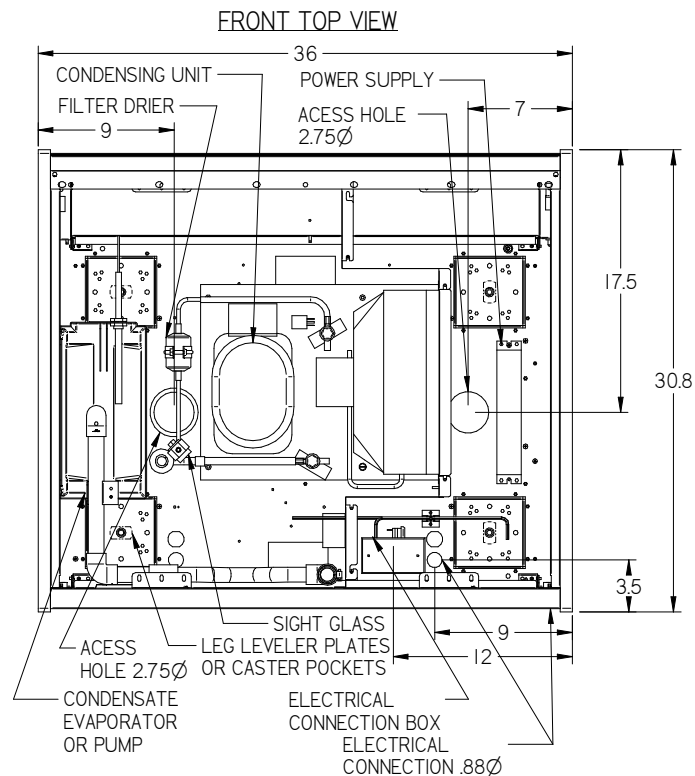
F) BASE COMPONENT LAYOUTS

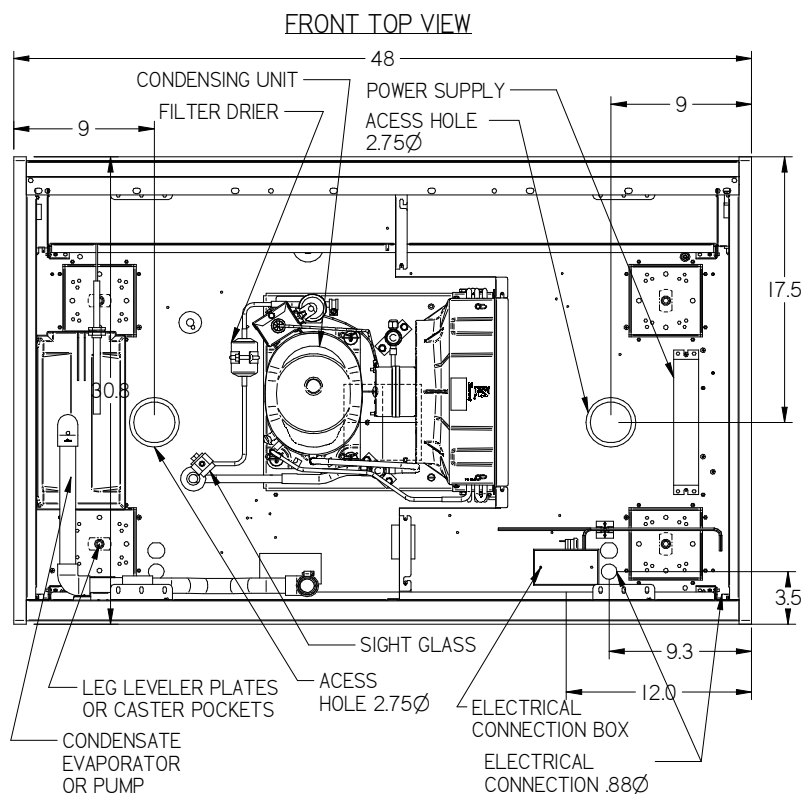
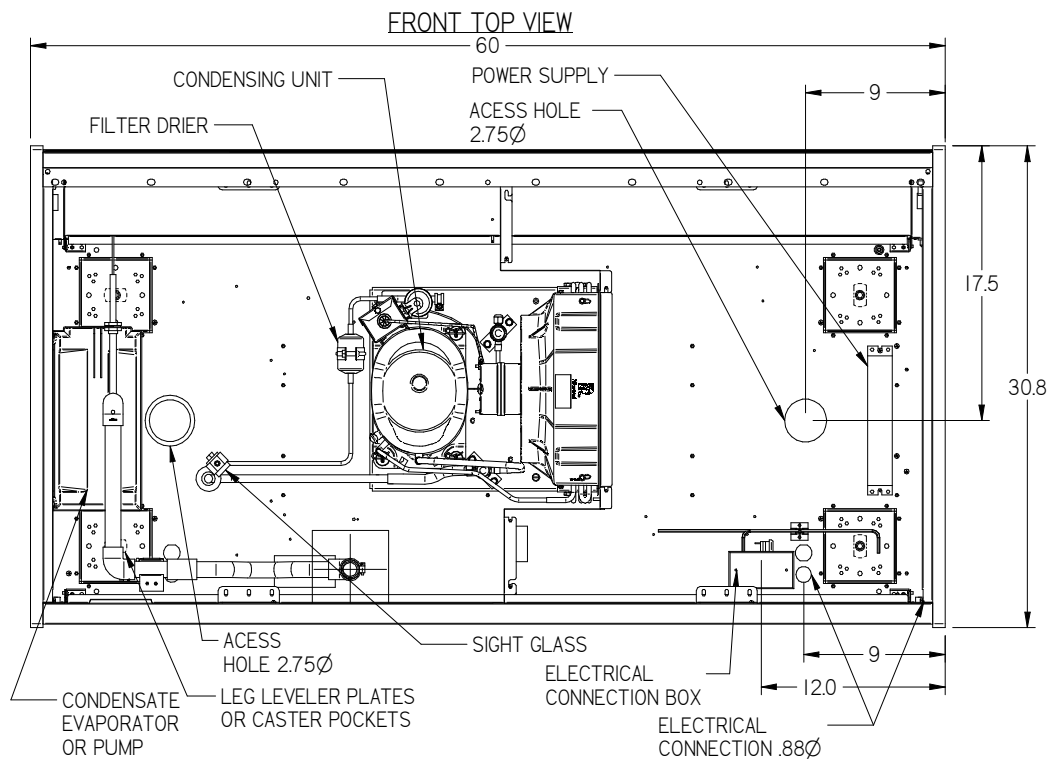
Refrigerated Self Contained Models

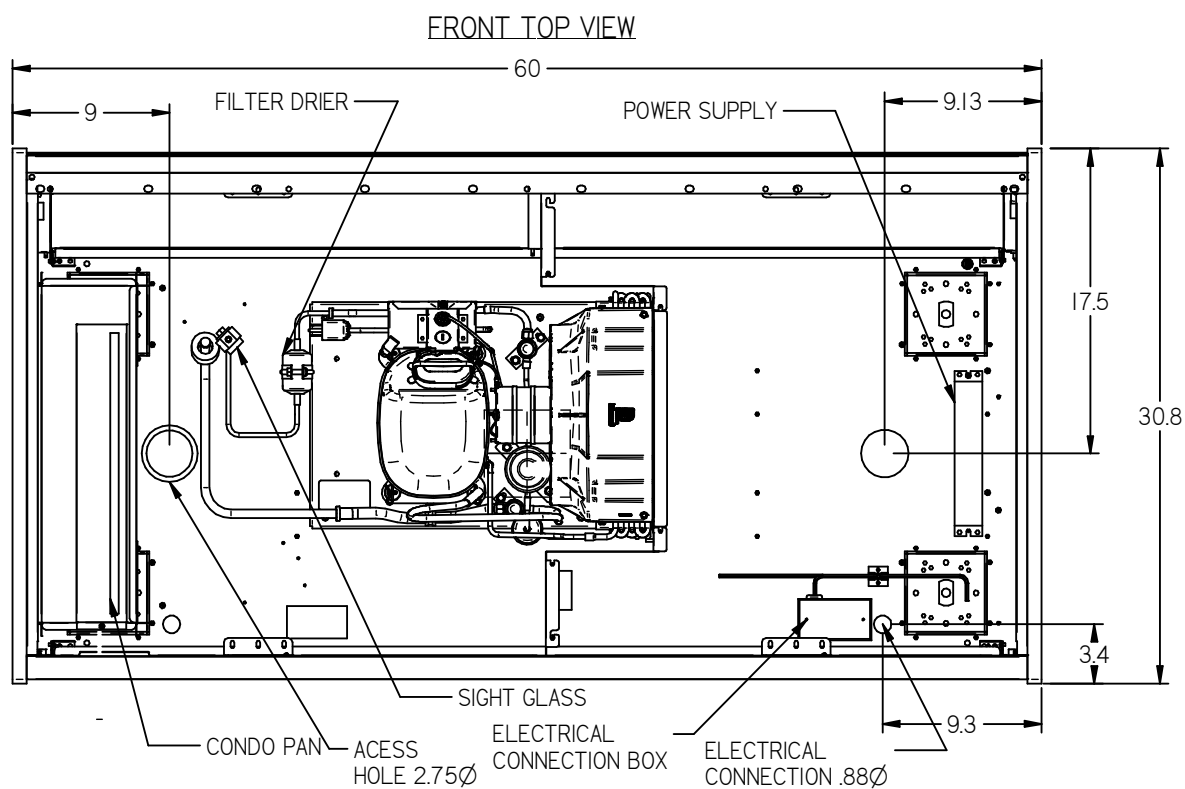
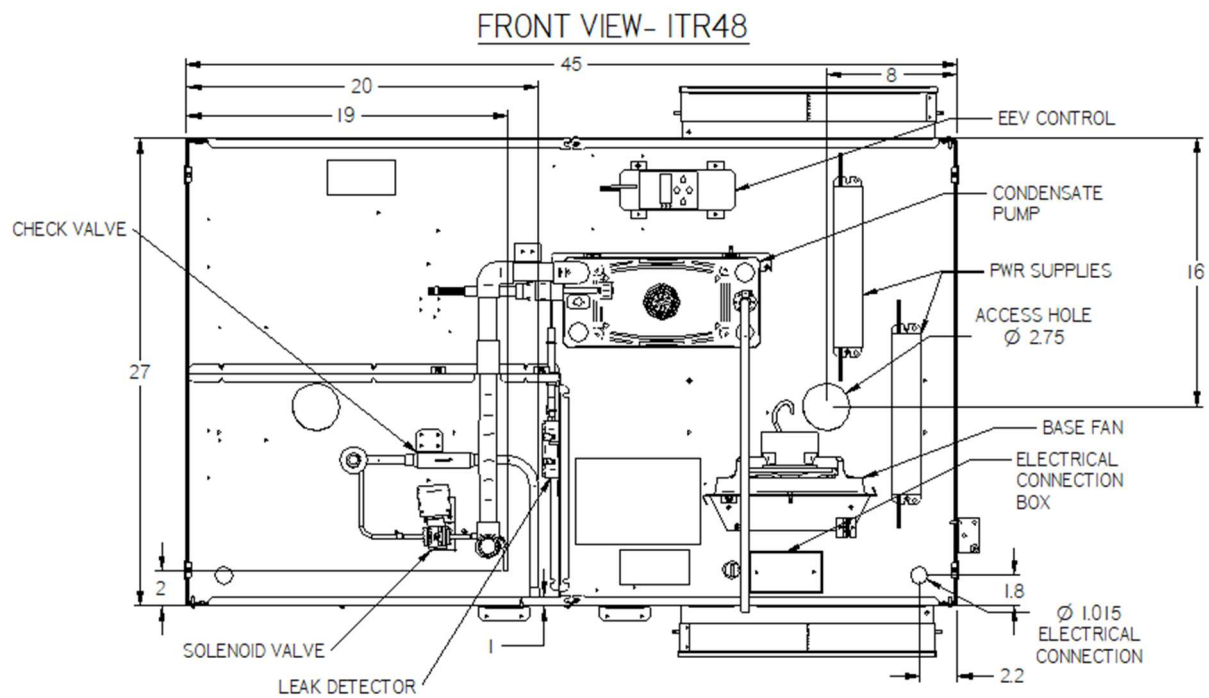
Counter ITR & ITRSS 36 Self Contained



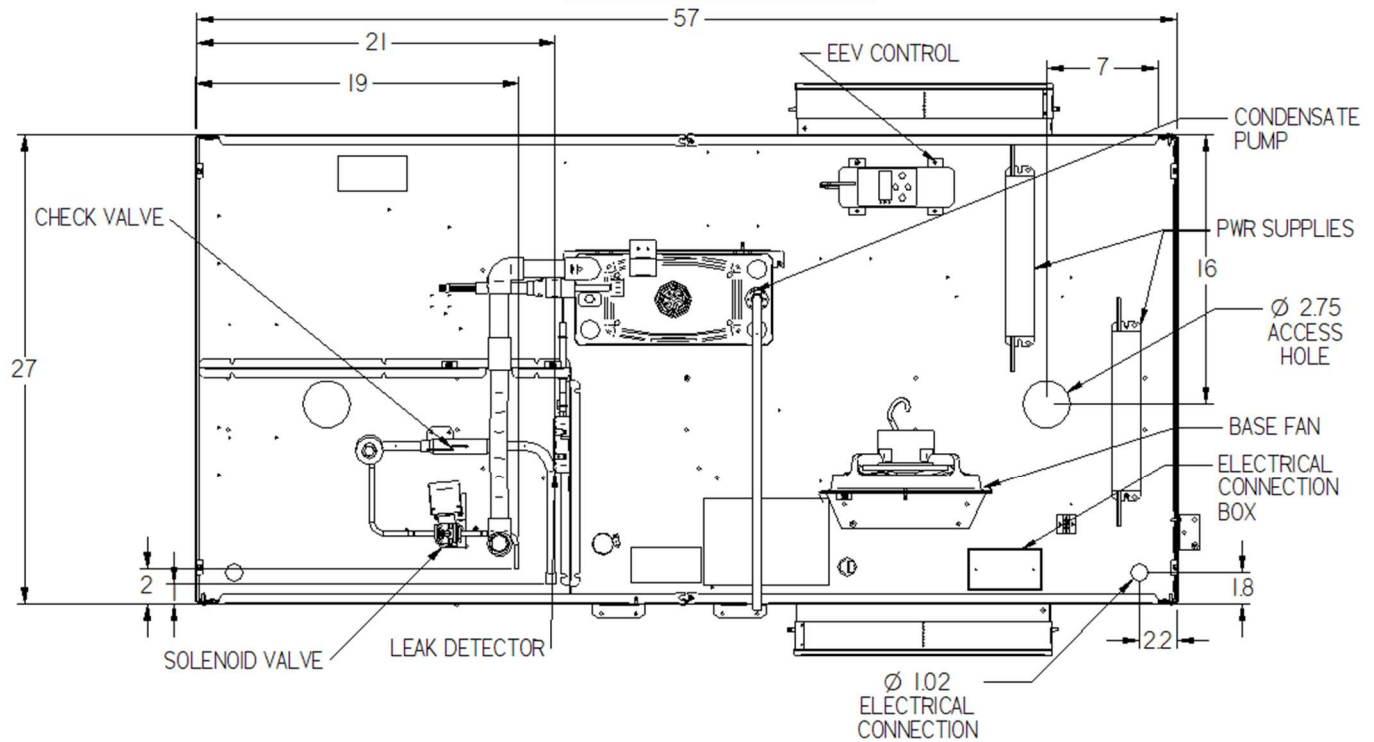
Counter ITR & ITRSS 48 Self Contained**Counter ITR60 Self Contained**

Counter ITRSS60 Self Contained**Floor ITR & ITRSS 36 Self Contained**

Floor ITR & ITRSS 48 Self Contained**Floor ITR60 Self Contained**

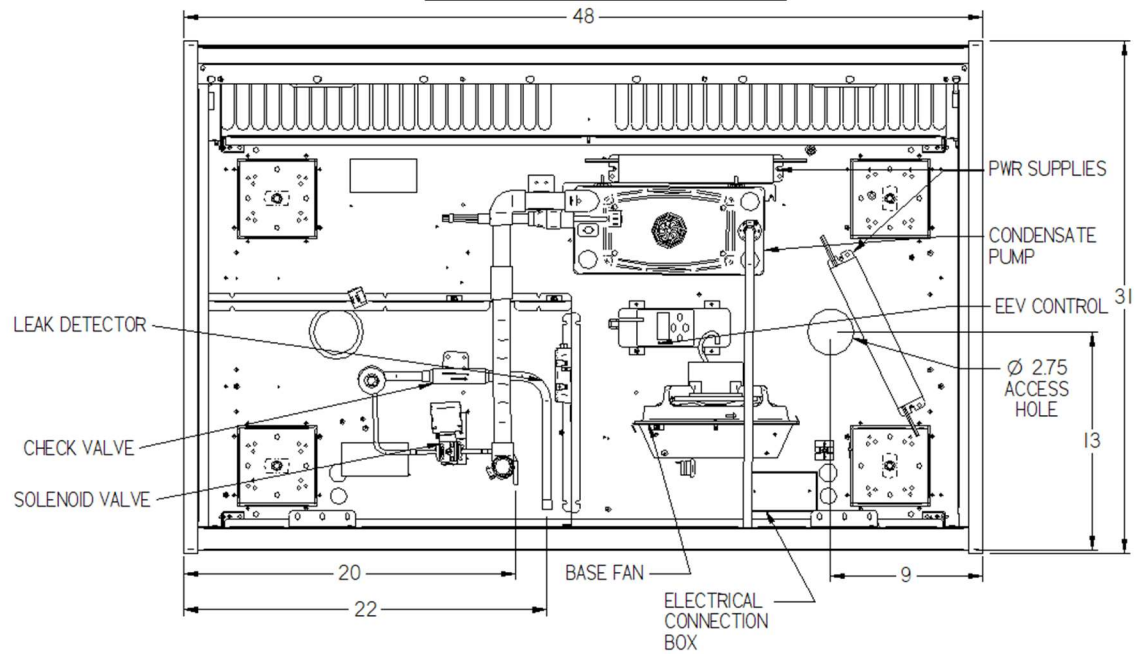
Floor ITRSS60 Self Contained**Refrigerated Remote Models****ITR Counter Remote**

FRONT VIEW- ITR60

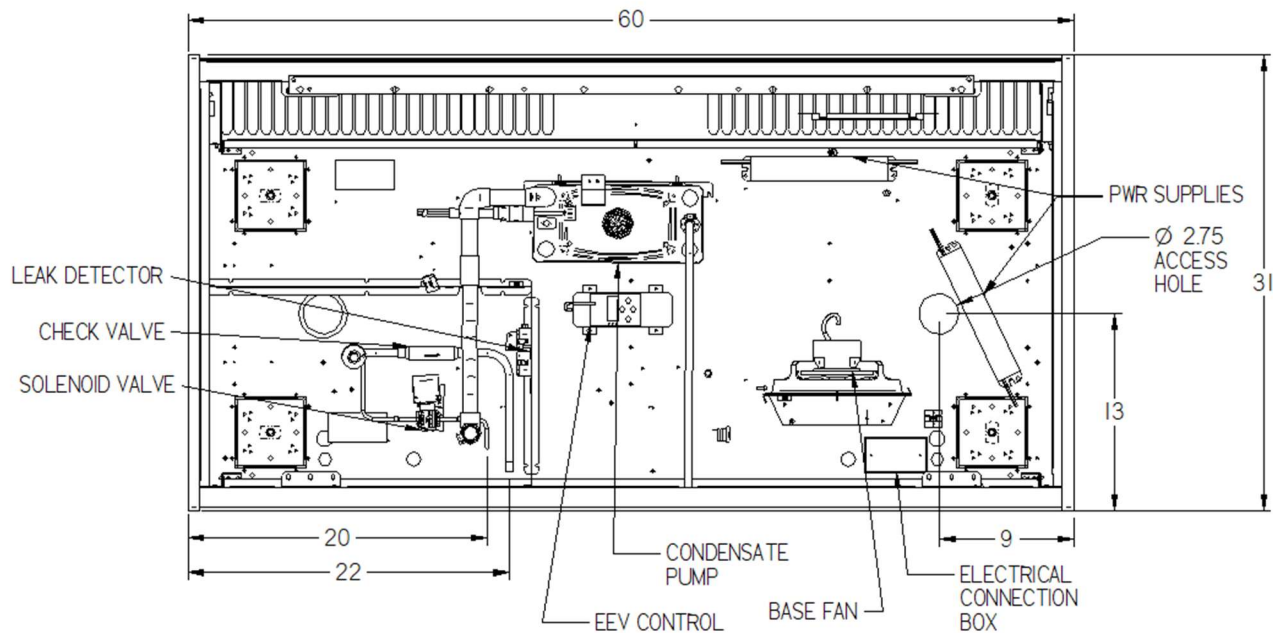


ITR Floor Remote

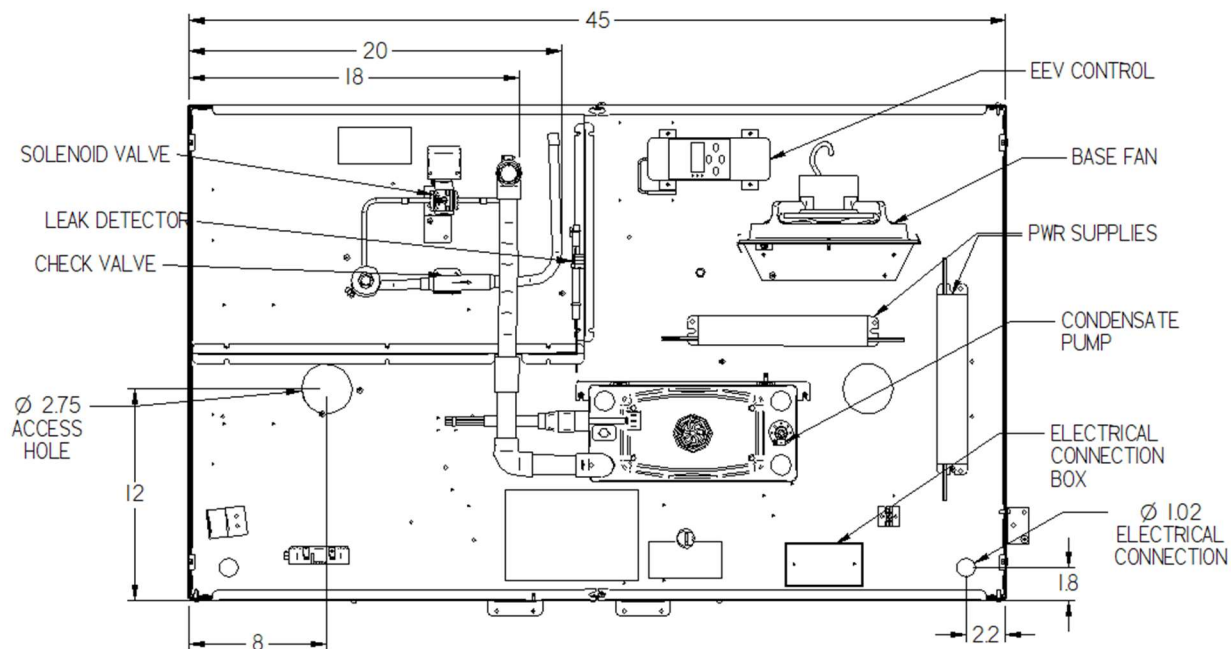
FRONT VIEW- ITR48 FLOOR



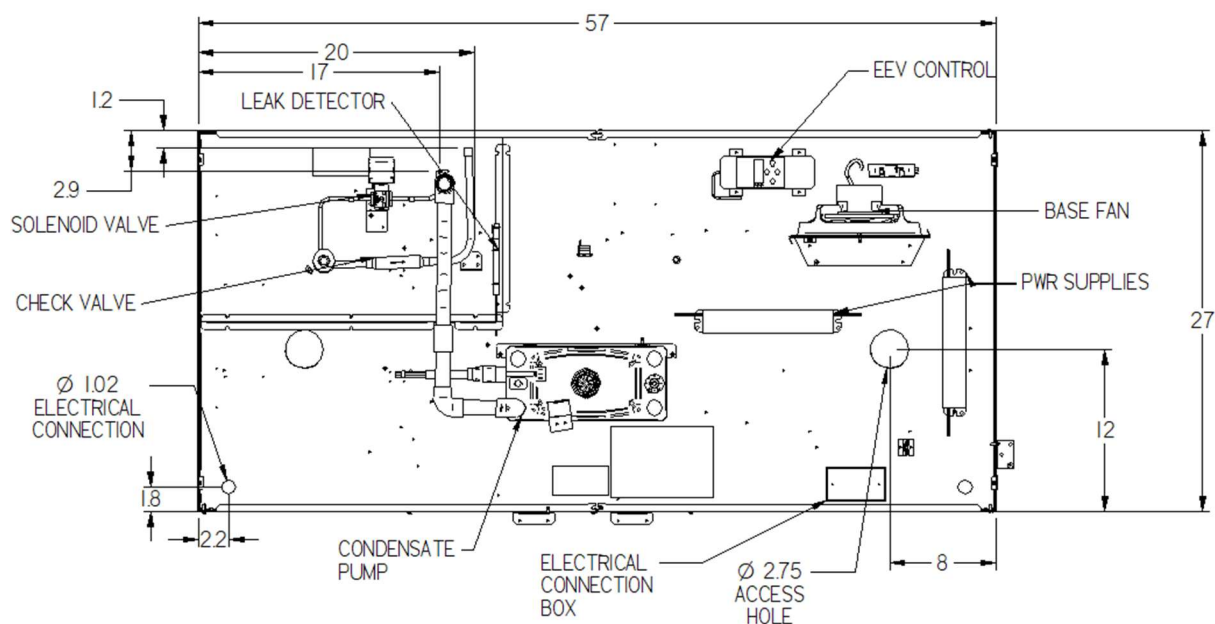
FRONT VIEW- ITR60 FLOOR

**ITRSS Counter Remote**

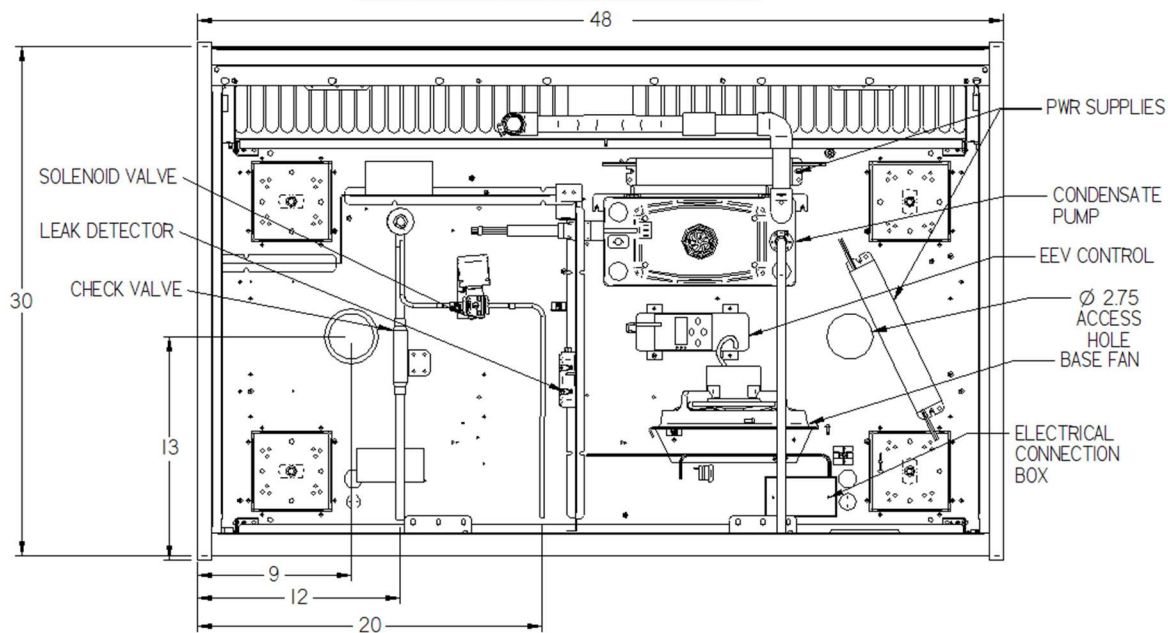
FRONT VIEW- ITRSS48



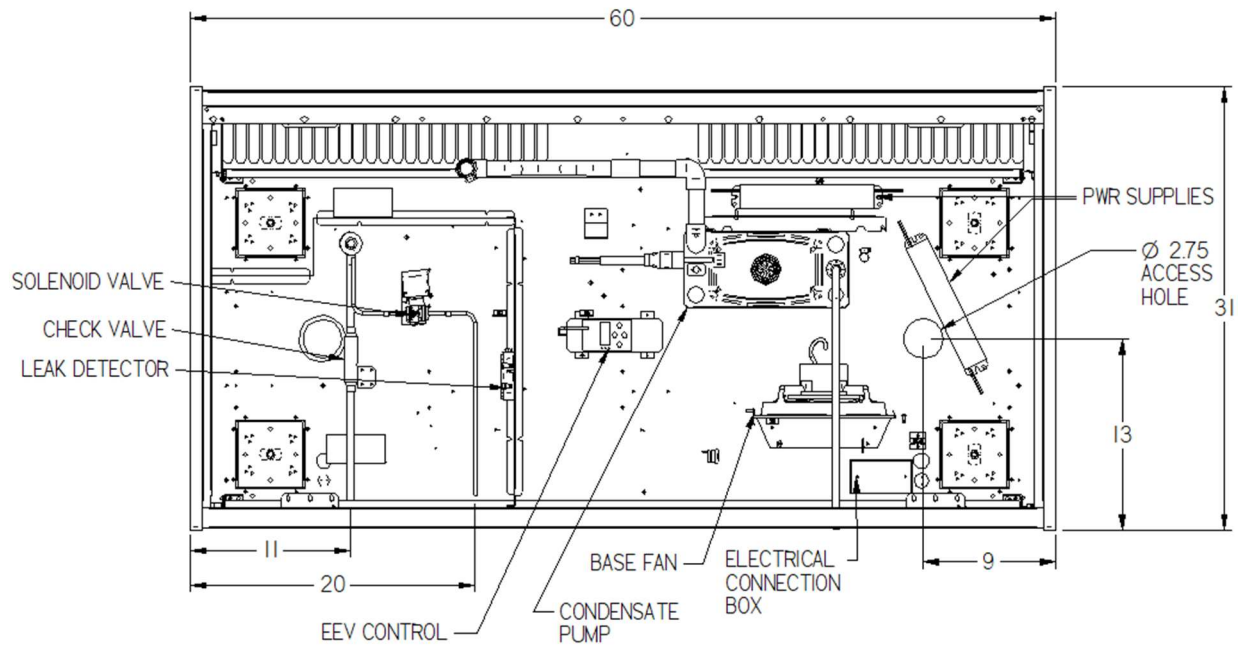
FRONT VIEW- ITRSS60

**ITRSS Floor Remote**

FRONT VIEW- ITRSS48 FLOOR



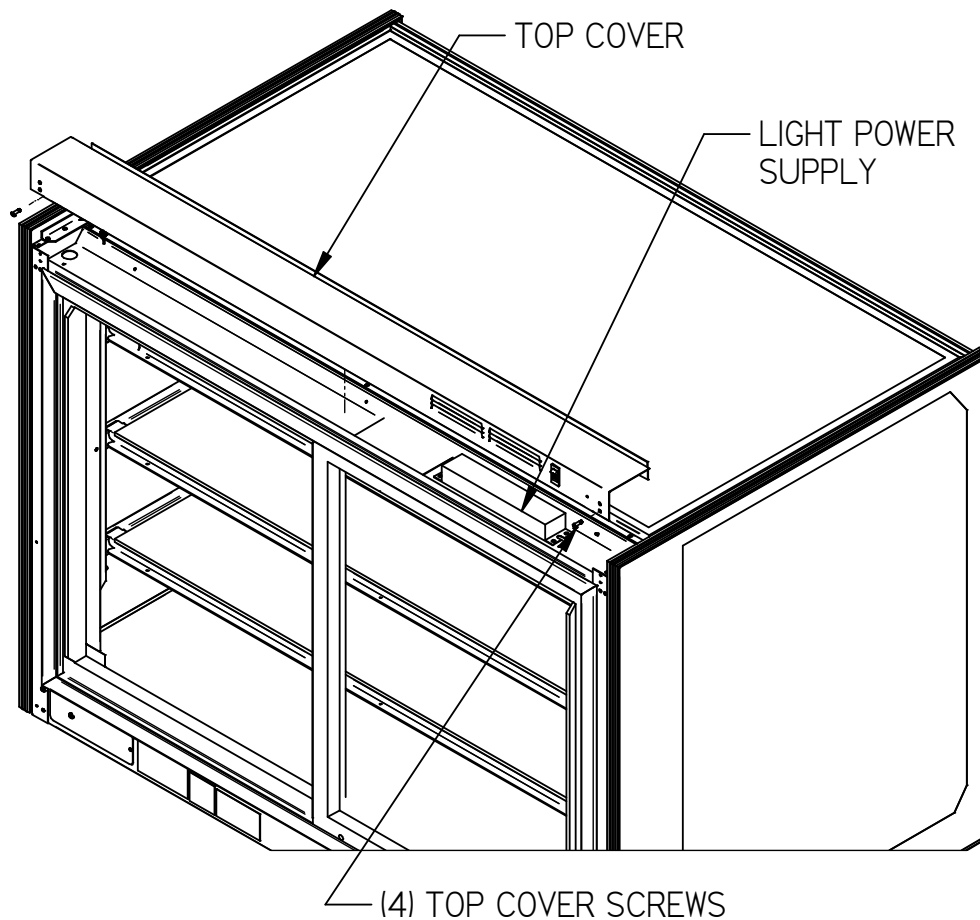
FRONT VIEW- ITRSS60 FLOOR



Floor ITD, ITDSS & ITDSSF NON-Refrigerated

There are no components in the base on NON-Refrigerated models so no base layout is provided

Light Power Supply is located on top of case under the top cover. See Removal Section of this Manual.



G) PRIOR TO UNPACKING EQUIPMENT

Inspection for Shipping Damage

You are responsible for filing all freight claims with the delivering truck line. Inspect all cartons and crates for damage as soon as they arrive. If damage is noted to shipping crates, cartons, or if a shortage is found, note this on the bill of lading (all copies) prior to signing.

If damage is discovered when the case is uncrated, immediately call the delivery truck line and follow-up the call with a written report indicating concealed damage to your shipment. Ask for an immediate inspection of your concealed damaged item. Crating material must be retained to show the inspector from the truck line

H) INSTALLATION INSTRUCTIONS



Important: Read Section REFRIGERATION WARNING INSTALLATION-REPAIR-DECOMMISSIONING of this manual starting on page 9.

All refrigeration and electrical work shall be performed by certified technicians.

The installation of the appliance and the refrigerant shall only be performed by Federal-approved Service or suitably qualified person.

The appliance shall be installed in accordance with safety standards ANSI/ASHRAE 15.

The appliance shall not be installed in public corridors or lobbies.

Case meets requirements for safe operation in climate class 3 environment. (Dry bulb temperature, 77°F; Relative humidity 60%). This is not a performance indication.

This case is designed for performance in NSF TYPE 1 environment: Maximum Ambient Temperature cannot exceed 75°F and Maximum Relative Humidity of 55%.

Locating Display Case

The case must be located where it is not subjected to the direct rays of the sun, heating ducts, grills, radiator, or ceiling fans, nor should it be located near open doors or main door entrances. Also, avoid locations where there is excessive air movement or air disturbances.

Floor Model Location

The case requires a minimum of 36" clearance on side of air intake or air discharge. Do not locate case with front or back tight against the wall.

No clearance is needed on sides of the unit.

Counter Model Location

The counter units are designed to be placed on or into the top of a cabinet counter.

The refrigerated cases require special consideration of cabinet design to allow condenser air to enter intake and discharge from cabinet space. The requirements for specific cases outlined in this section must be followed. Failure to follow these instructions will void warranty.

Additional Parts Shipped with Unit

Remove bubble wrap and packing material for all shelves and panels, brackets, etc. If it is necessary to remove tape residue from plastic materials, use cleaning compounds recommended in the cleaning section of this manual. Install panels and shelving as described in the proper section of this manual.

CABINET PREPARATION

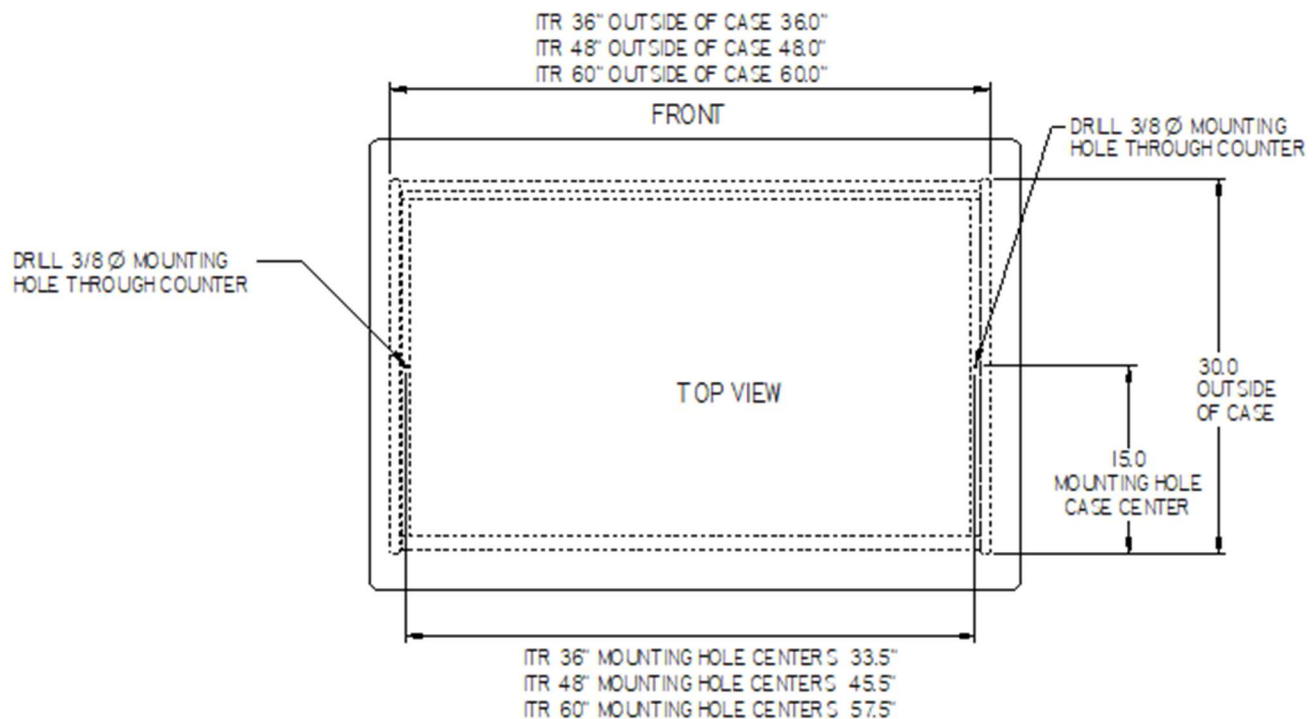
ITD, ITDSS & ITDSSF Non-Refrigerated Model Cabinet Mounting

The ITD models set directly on top of counter. The Case must be attached and sealed to top of counter to prevent counter from moving. Counter will require (2) 3/8" dia. holes to be drilled through the countertop surface to attach case to counter. Use the diagram below for hole location

Place case on to counter and fasten from under cabinet with (2) 10-32 screws and washers provided.

The case must be sealed to the counter using a NSF Listed Sealant.

IMPORTANT: When placing cases in a line up the number of end panels used will be different. The cut-out and hole placement dimension will need to be adjusted for each specific line-up arrangement.



ITR Refrigerated Models Cabinet Mounting

The ITR models have a large compartment hanging from the bottom of case. On the Self-Contained models it contains the condenser and condensate evaporator. On the Remotes it contains the condensate pump or evaporator, fan, and other electrical components. This compartment hangs

inside the cabinet compartment, and the interior of the cabinet must be open to allow space for this compartment.

Cabinet Cutout

The countertop must be cut to allow the case's base and condenser compartment to drop into the cabinet interior.

On refrigerated self-contained units with an optional condensate evaporator pan, the Grill cut outs must be cut on the front and/or back of cabinet to allow air flow in and out of refrigeration compartment as determined by desired layout. (See section Cabinet Grills & Air Duct (All refrigerated self-contained with optional condensate evaporator pan and All remotes))

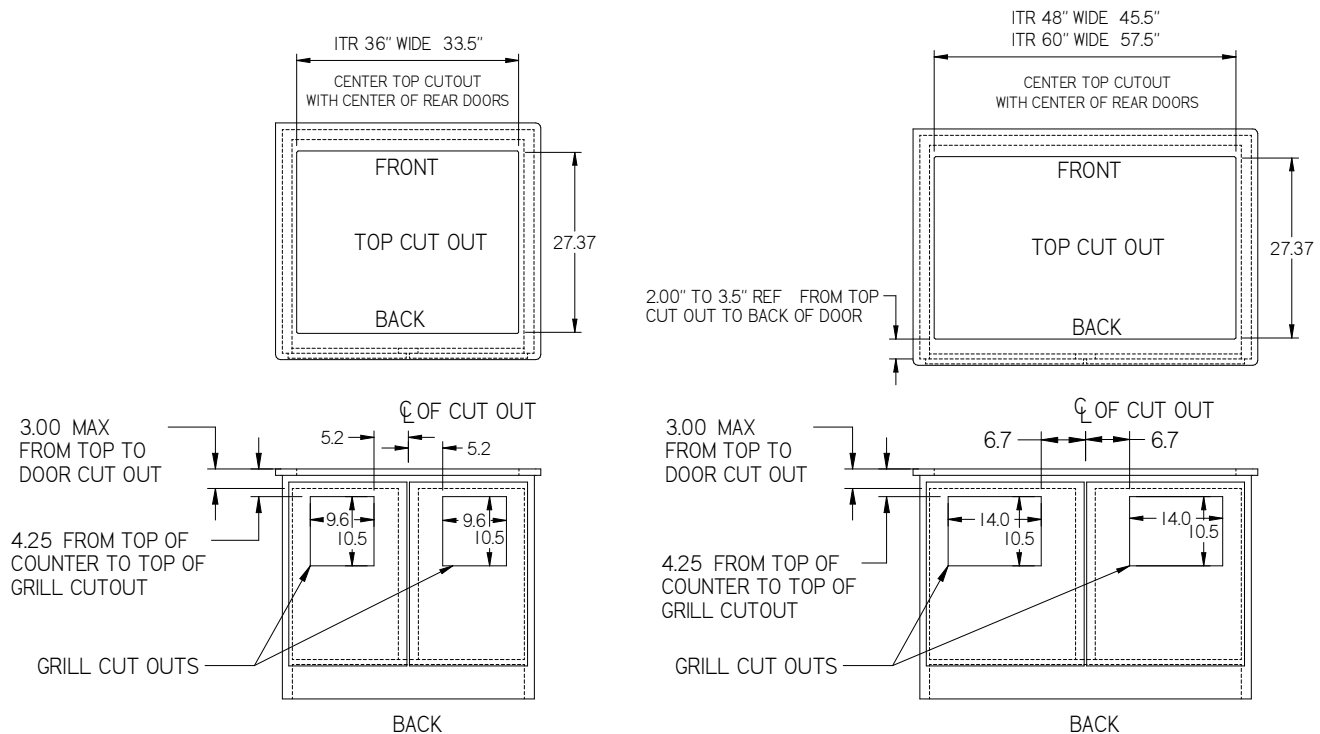
On refrigerated remote units, a Grill cutout **MUST** be cut in front and back of cabinet to allow air flow in and out of the refrigeration compartment. This orientation cannot be changed.

Use the diagrams below for cutout dimensions.



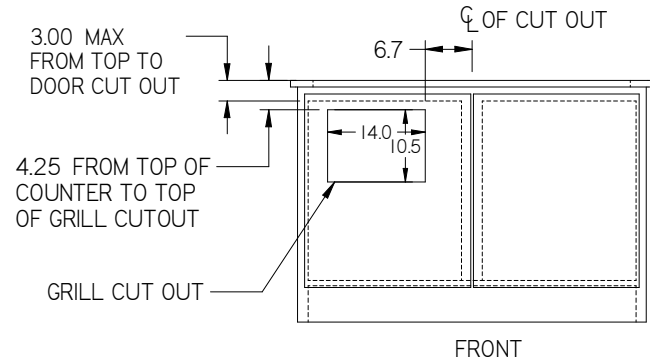
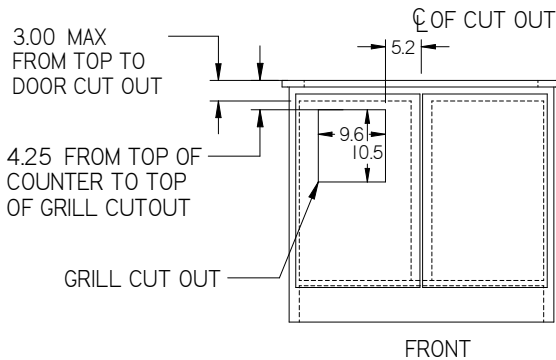
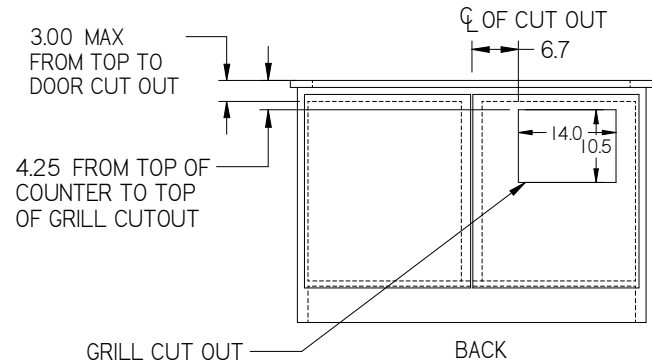
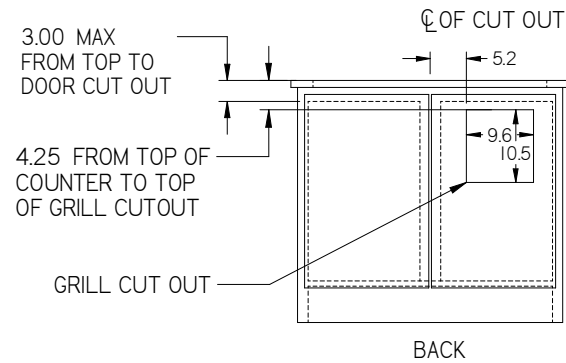
IMPORTANT: When placing cases in a line up the number of end panels used will be different. The cut-out and hole placement dimension will need to be adjusted for each specific line-up arrangement. See Continuous Line up drawing below.

Self-Contained cutouts:



Remote cutouts

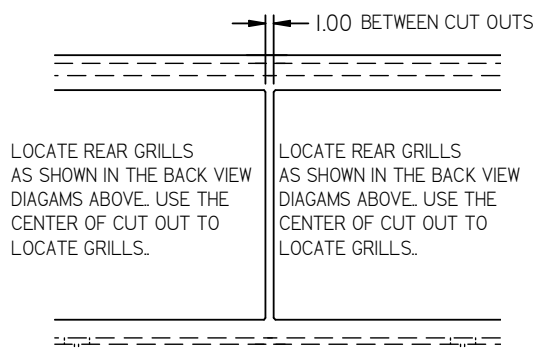
Remotes require 1 cutout in the back and 1 cutout in the front on the same end of the counter. This configuration CANNOT be changed.



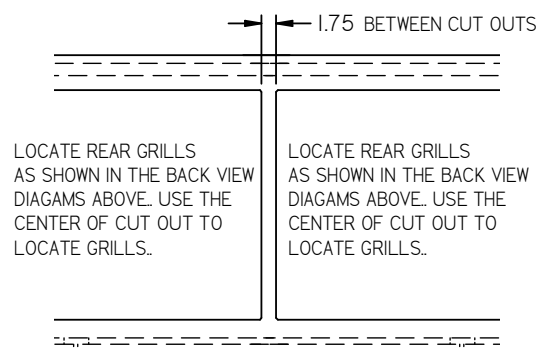
Continuous Line Up Cut Outs

Note: Dry Cases do not require cut out in counter

CASES WITH NO CENTER GLASS BETWEEN CASES



CASES WITH (I) 3/4" CENTER GLASS BETWEEN CASES



Removing Case from Shipping Skid and General Installation



CAUTION

Do not push or pull against the top end glass, or door frames and do not pull-on end panels when removing the case from the skid or moving the case.

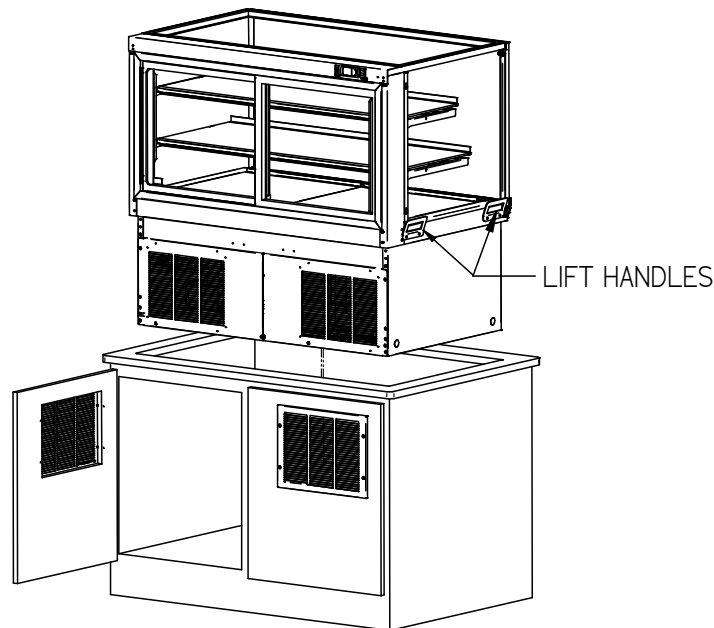
Case damage or glass breakage will result. Broken glass may result in injury.

- 1) Remove crate top and sides and note missing or damaged items as explained in the pre-installation procedures outlined above.
- 1) Move the case as near as possible to the final location and before removing it from the shipping skid.
- 2) Prepare cabinet according to instructions in this section that pertain to your model.
- 3) For Floor Models
 - a) There are (4) bolts through the skid and into each corner of the base of unit. Remove the front and back base panels as described in this manual. Remove the (4) nuts and bolts holding unit to skid.
 - b) Lift the case off of skid and into required position. Only lift the case from under the front and rear lips on base or frame of unit.
 - c) The case must be level for proper drainage of defrost condensate to the condensate evaporator or pump. Using the wrench provided level and square the case as needed by adjusting the leg leveler in each corner of base.
 - d) The leveled case must be sealed to the floor using an NSF Listed Sealant.
- 4) For Counter Models
 - e) The case is held to skid with (4) brackets on each outside corner of the case. Remove the screws that secure these (4) brackets to the skid and case.
 - f) The counter cases are shipped with end glass removed and lifting handles are provided on each side of case. Using lifting handles lift the case off skid and into required position. Once case is placed into position remove lifting handles and install end glass as described in End Glass Installation Section
 - g) The countertop that the case is placed on must be level for proper drainage of defrost condensate to the condensate evaporator or pump.
 - h) The case must be sealed to the counter using an NSF Listed Sealant.

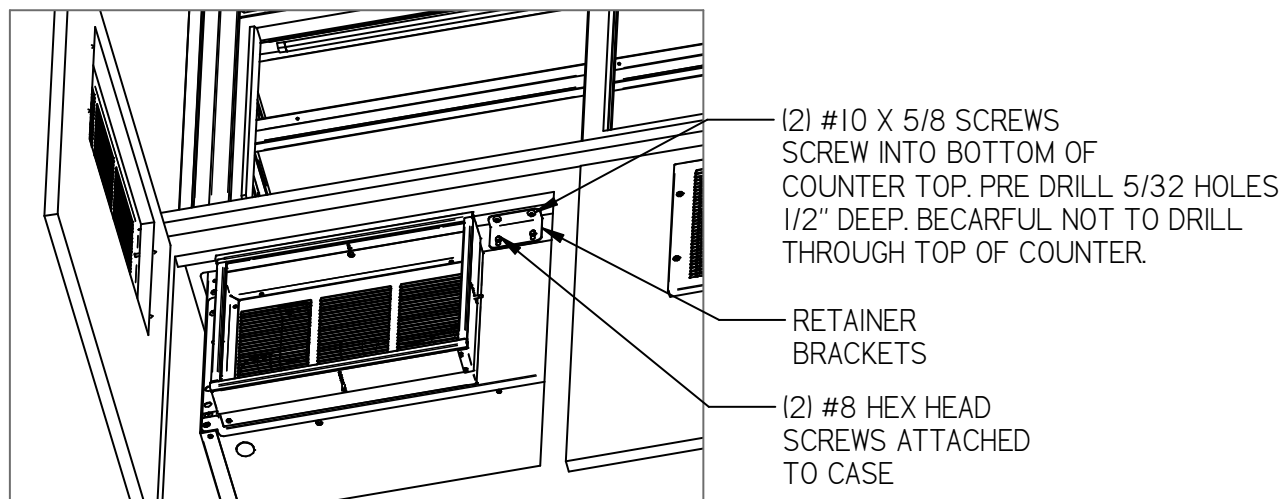
Counter Case Install

The Inner Outer Duct Assemblies and Retainer Brackets are shipped attached to the case refrigeration compartment. The Duct Assemblies and Retainer Brackets must be removed before setting case into cabinet opening. To disassemble remove the (8) screws holding each Duct Assembly to the louvered panel also remove the (2) screws holding each Retainer Bracket.

Lift handles and screws are shipped loose with case. To use the provided handles, remove the end glass panels as described in the End Panel Installation section of this manual. There are holes provided in the side rails of case in the location shown below. Attach handles using the provided 1/4-20 screws. Be sure to use gloves to prevent injury and use handles to lift case into cabinet. Once case is placed into cabinet remove the (4) handles and install side glass as described in End Panel Installation section of this manual.



Once case is in place it must be secured to prevent it from moving during use. Reattach the Retainer Brackets that were previously removed in same location using the #8 hex head screws. Push bracket up tight to bottom of counter top and tighten screws. Predrill (4) 5/32 holes 1/2" deep into the counter top. (Be careful not to drill through top of counter)



Cabinet Grills & Air Duct (All refrigerated self-contained with optional condensate evaporator pan and All remotes)



Important: Federal Industries reserves the right to deny warranty if the cabinet is not ducted to allow proper condenser and condensate air intake and discharge, or if the cabinet louvers are not installed properly, or if condenser air intake and discharge air is blocked or located near a source of heat.

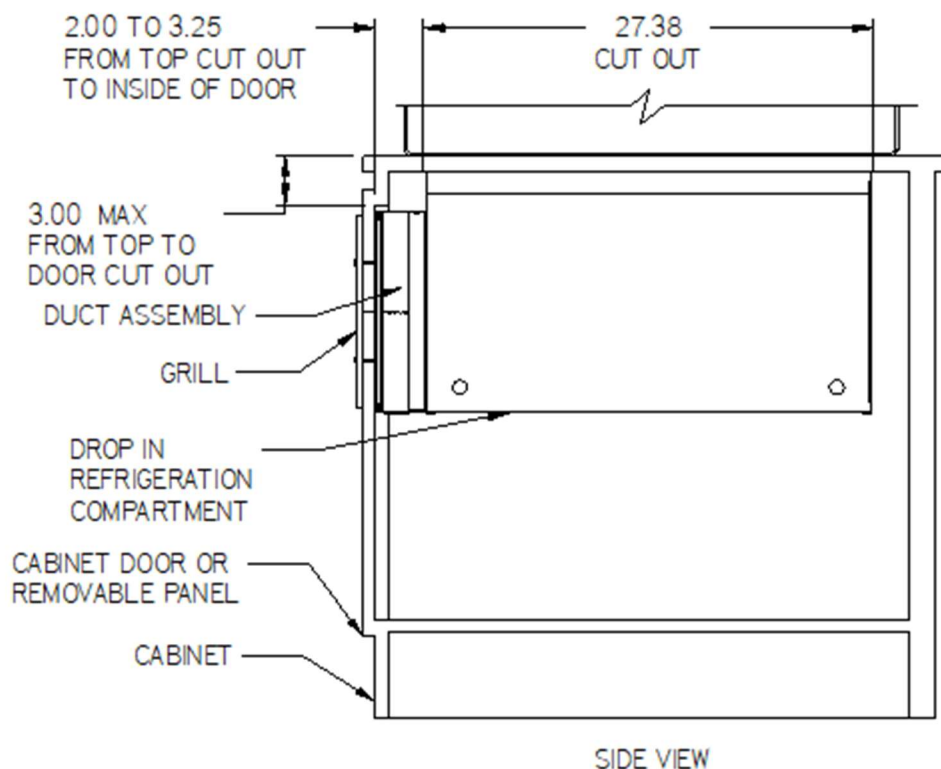
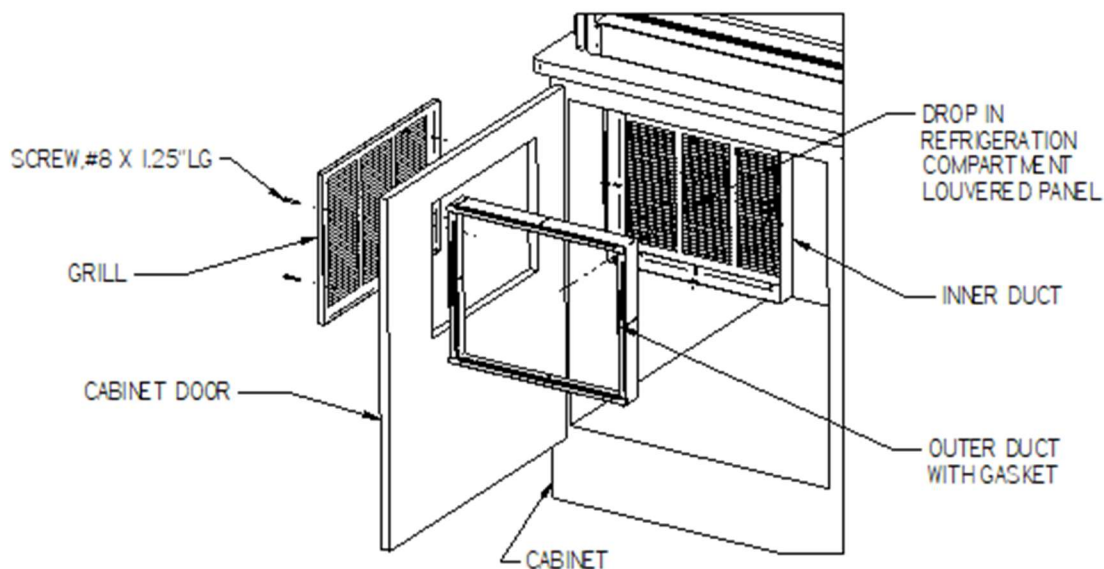
The condenser air intake and discharge must be separated and vented out of the cabinet compartment for case to operate. The required louver grills and expandable ducts for both intake and discharge are provided with case. On Remotes, the louvers are required to vent the moist condensate air.

For self-contained units, the louvered panels mounted to condenser compartment are located on the back of the compartment and solid panels are mounted to front of the compartment when shipped from factory. This setup is for air intake and discharge out of the back of the cabinet. The intake and discharge louvered panels can be moved to front of compartment and the solid panels moved to the back of compartment if air intake and discharge is required out of front of cabinet. They can also be mixed with one louver panel in front and one in back to allow front condenser air in or out of front and rear air in or out back.

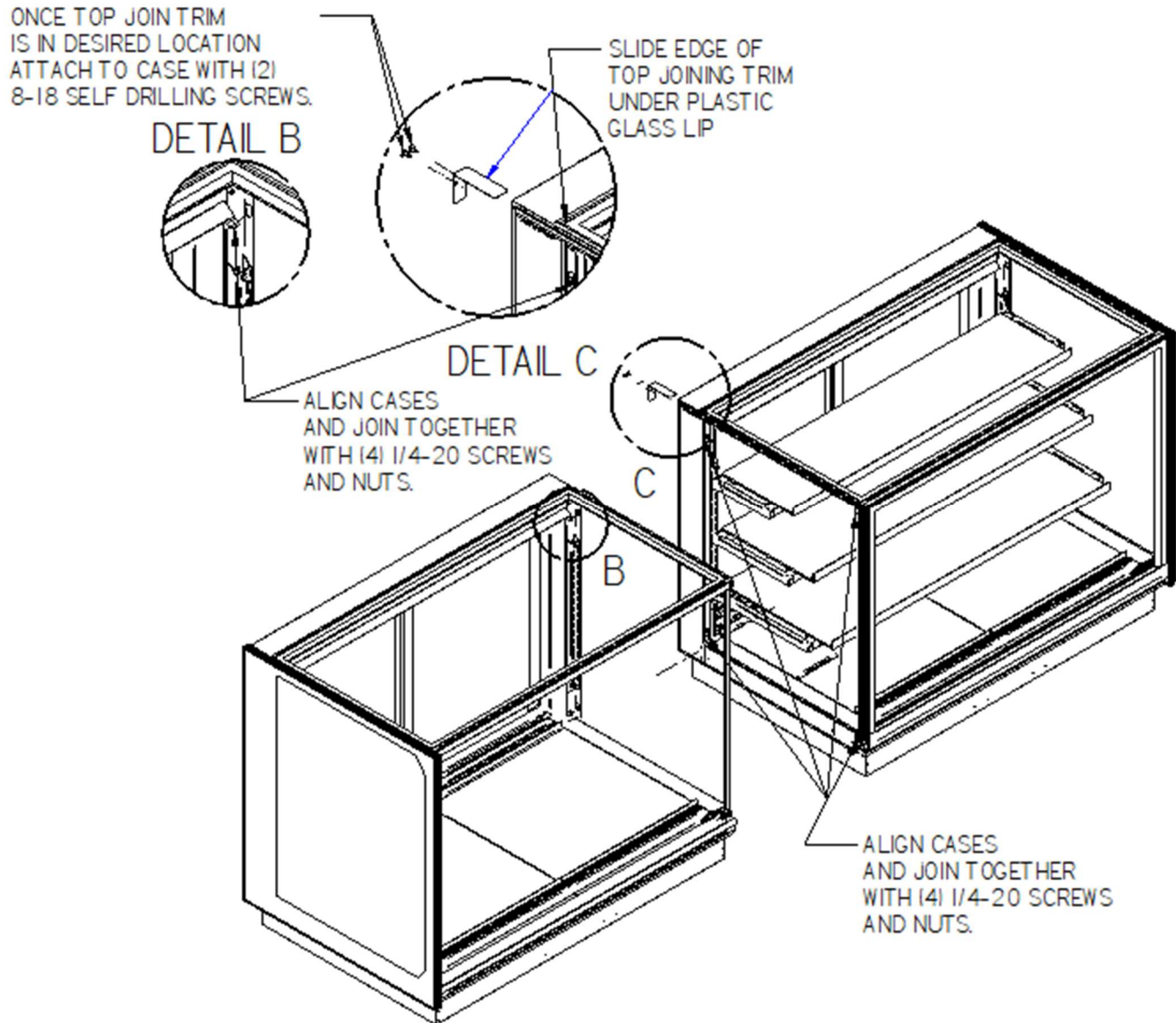
For remote units, one louvered panel and one solid panel is mounted on the front of the compartment. One louvered panel and one solid panel is mounted on the back of the compartment when shipped from factory. This setup is for air intake and discharge through the cabinet to disperse any flammable vapor in the event of a leak within the cabinet. The intake and discharge louvered panels shall NOT be moved.

The Outer Duct must be adjusted so that the gasket seals against the Cabinet Door. Remove the (4) screws located inside of the Outer Duct. There are multiple holes in the Outer Duct. Move Outer Duct to desired depth and reinstall (4) screws. Open & close door and be sure Gasket seals hits door

Center the supplied Grills on outside of Cabinet Doors and mark holes onto doors. Drill 1/8 holes into door in marked positions. With Grill flanges against door screw Grill to cabinet door with (4) supplied #8 x1-1/4 screws.



Joining Cases (No End Glass Between)

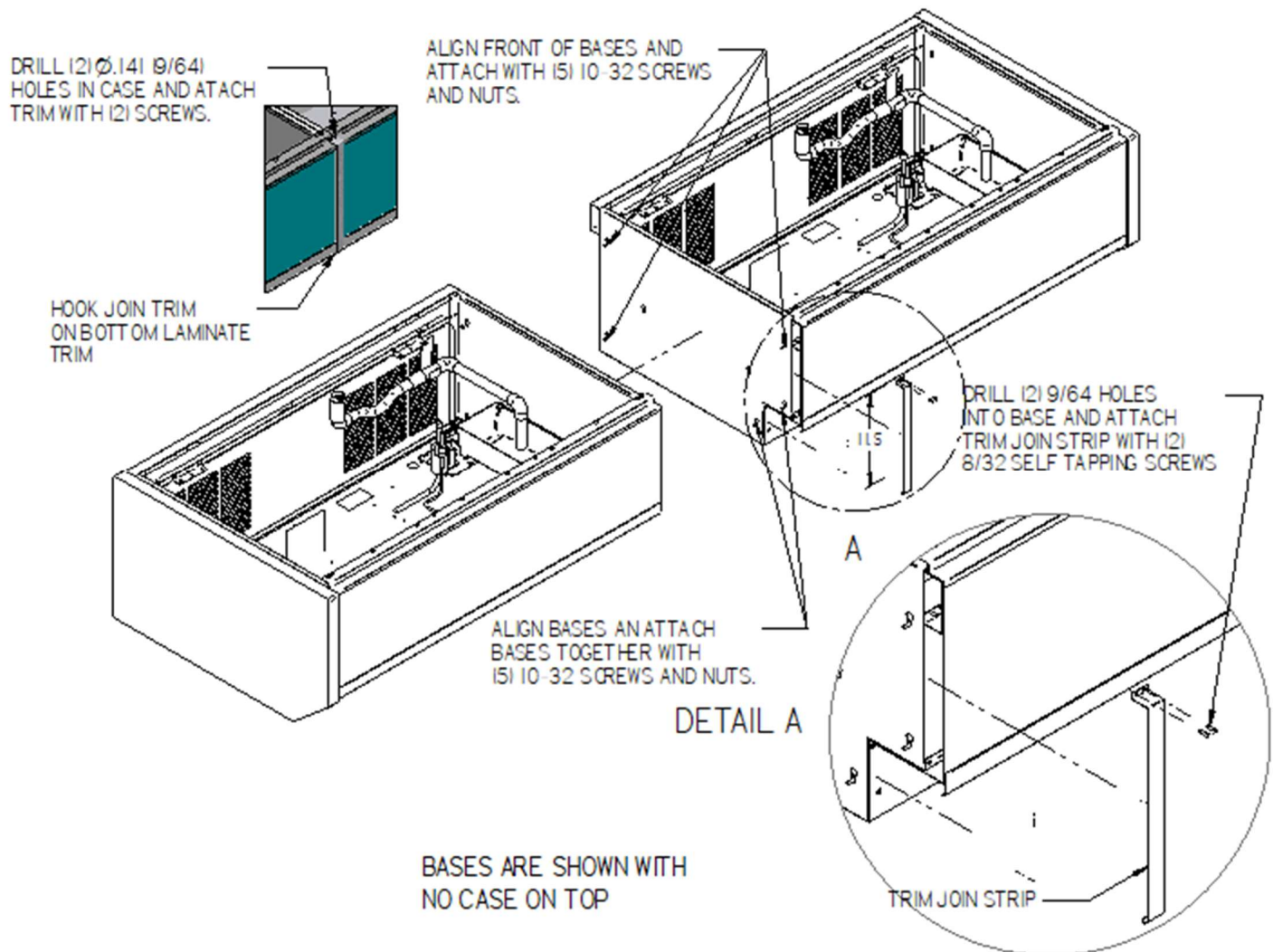


- 1) If cases are Countertop Models, cut holes in countertop as shown CABINET PREPARATION section of this manual.

If cases are Floor Models, the cases are joined in the same manner, but bases will also need to be joined as described in next section.

- 2) Push cases together and align front and rear of cases.
- 3) In the holes and slot location shown in above diagram, attach cases together with (4) 1/4-20 screws and nuts provided. If these are Floor Model cases do not tighten screws until completing The Joining Floor Model Base Section.
- 4) Slide the top join strip under the glass trim lip in top rear of case as shown in diagram above.
- 5) Attach Join Trim Strip with (2) 8-18 self-drilling screws.

Joining Floor Model Bases (No End Panels Between)

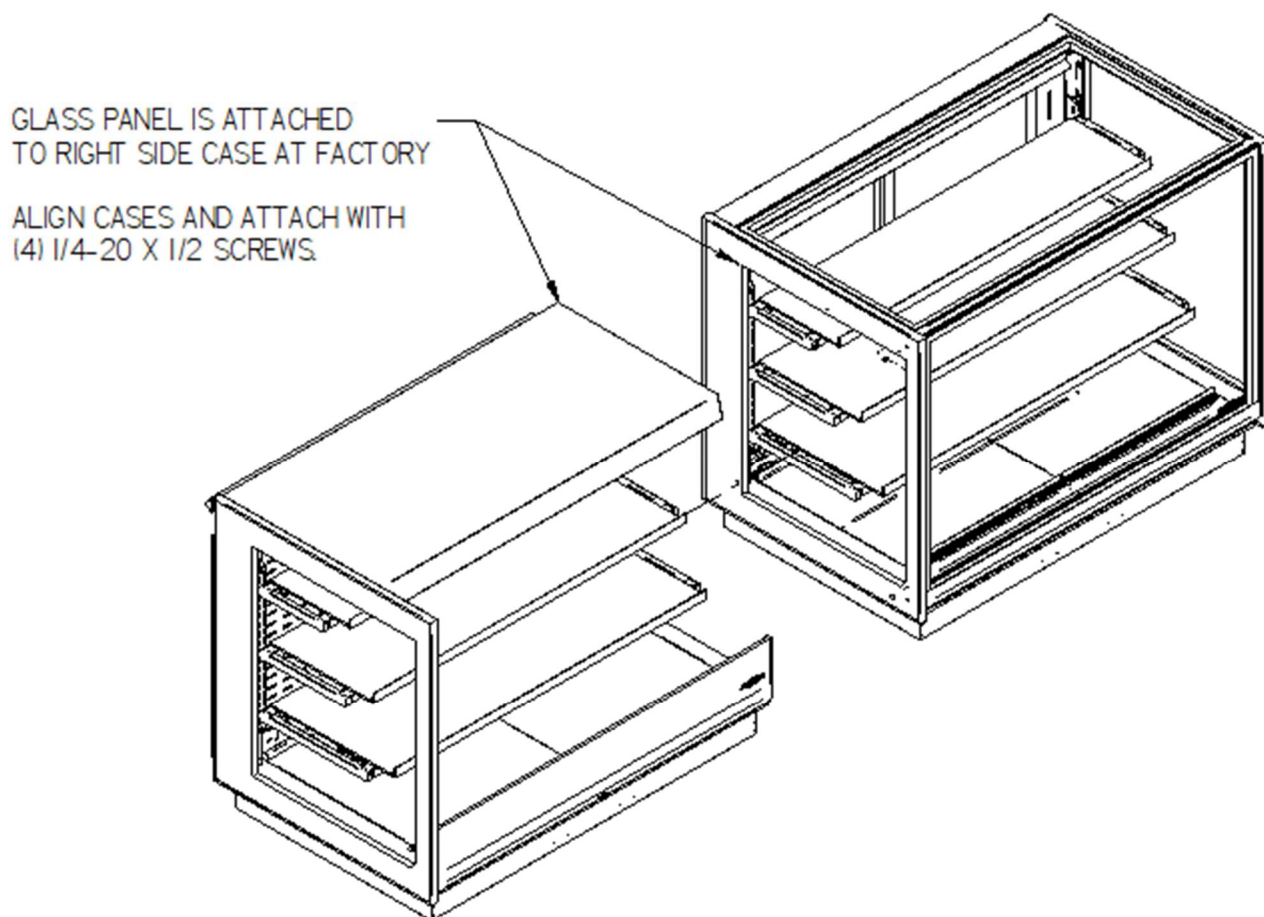


The cases are joined in the same manner as described in previous Joining Cases section, but the bases will also need to be joined.

- 1) Push cases together and align front and rear of cases.
- 2) Remove the base front and back panels as described in COMPARTMENT PANEL REMOVAL Section.
- 3) Push cases together and align front and rear of cases and bases. If there is a miss-alignment between cases and the bases, it may be necessary to loosen the screws holding the case to the base. The mounting brackets are located inside the top of the base and there are (2) in the front and (2) in the back. This will allow slight adjustment to improve alignment. Retighten these screws once components are properly aligned

- 4) Attach the cases together using (5) 10-32 screws and nuts provided. Attach in the (5) Key slot location shown in above diagram. There are no fasteners used on the (2) center key slots.
- 5) Tighten all joining screws and nuts in base and case at this time.
- 6) Trim the front of base by hooking Base joining trim strip under base valance and up over the top of base trim.
- 7) Mark the base in the location of the top holes in the base join trim strip. Drill (2) 9/64 holes in base and fasten base join trim strip to base using (2) 8-32 screws provided. Attach Join Trim Strip with (2) 8-32 self-tapping screws.

Joining Cases (Single Glass End Between)



- 1) If cases are Countertop Models, cut holes in countertop as shown in CABINET PREPARATION section of this manual.

If cases are Floor Models, the cases are joined in the same manner, but bases will also need to be joined as described in next section.

- 1) Push cases together and align front and rear of cases. Be sure case surfaces are tight together.

- 2) Attach the cases together with (4) 1/4-20 screws provided. Do not use screws to pull cases together. Glass bushing may strip or glass may break. If these are Floor Model cases do not tighten screws until completing The Joining Floor Model Base Section.

Joining Floor Model Bases (Single End Panels Between)

Cases are joined in the same manner as described in previous Joining Cases section, but the bases will also need to be joined.

- 1) Remove the base front and back panels as described in COMPARTMENT PANEL REMOVAL Section.
- 1) Push cases together and align front and rear of cases and bases.
 - a) If there is a miss-alignment between cases and the bases, it may be necessary to loosen the screws holding the case to the base. The mounting brackets are located inside the top of the base and there are (2) in the front and (2) in the back. This will allow slight adjustment to improve alignment. Retighten these screws once components are properly aligned.
 - b) It may also be necessary to adjust leg levelers under base until case fronts align and the base side is tight together.
- 2) Attach the Left case to right case using (7) 10-18 screws and washers provided.

NOTE: The bases must be placed tightly together. Do not try to pull cases together with screw or the panel will strip out.

Remote Refrigeration Installation

There are special requirements for A2L refrigerants such as R454C

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, such as ANSI/ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed

The installation of pipe work shall be kept to a minimum.

Federal remote units are charged with dry nitrogen only. Joints made in the installation where any part is pre-charged shall be made in accordance with the following:

- a) A brazed, welded or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts. A vacuum valve shall be provided to evacuate the interconnecting pipe and/or any uncharged refrigerating system part.
- b) Mechanical connectors used indoors shall comply with ISO14903 or UL 207 or CSA C22.2 No.140.3. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be refabricated.
- c) Refrigerant tubing shall be protected or enclosed to avoid damage. Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that might be displaced during normal operation shall be protected against mechanical damage.

Mechanical connections shall be accessible for maintenance purposes.

Provisions shall be made for expansion and contraction of long runs of pipes. Protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.

Piping in refrigeration systems shall be designed and installed to minimize the likelihood of hydraulic shock damaging the system

Do not use steel refrigeration lines with Federal products.

Flexible pipe elements shall be protected against mechanical damage, excessive stress by torsion, or other forces, and that they should be checked for mechanical damage annually.

Precautions shall be taken to avoid excessive vibration or pulsation. Use vibration dampening tubing clamps as necessary, especially near sources of vibration.

This unit requires a minimum room area size to operate in. See table below for minimum room areas.

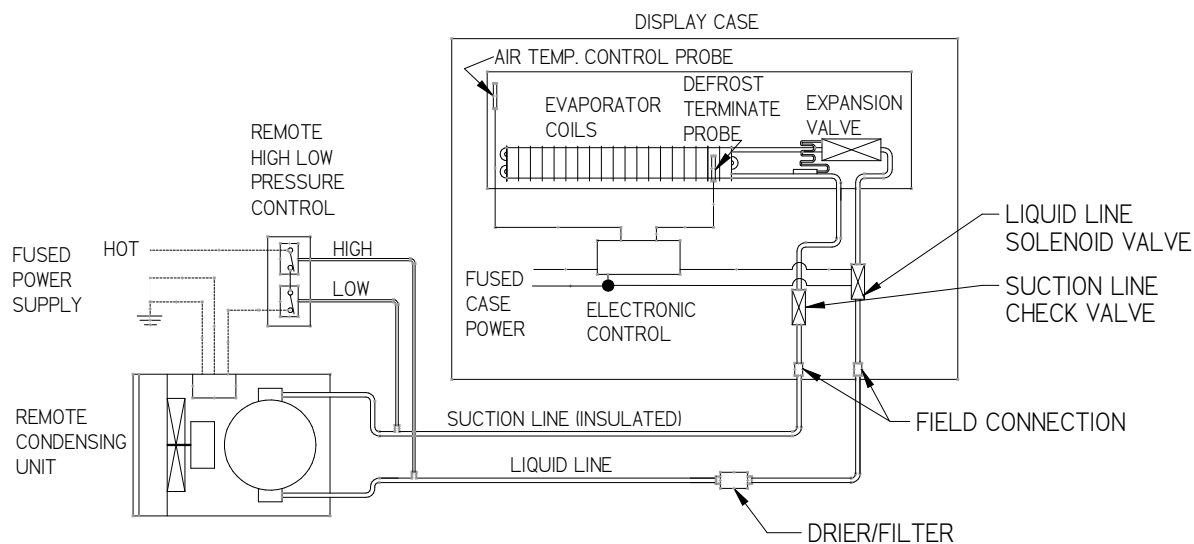
Model	A _{min} [sq meters]	A _{lim} [sq ft]
ITR4826	19	200
ITR4834	19	200
ITR6026	19	200
ITR6034	19	200
ITRSS4826	14	150
ITRSS4834	14	150
ITRSS6026	19	200
ITRSS6034	19	200

The condensing unit and pressure control are optionally supplied from the factory for remote location installation. A remote high low-pressure switch must be mounted and wired by the installer. The high low-pressure switch must be wired in series with the compressor power supply as shown in diagram below.

- 1) Mount condensing unit as close to the remote display case as practical. All refrigeration and/or electrical materials between the condensing unit and display case are to be supplied by installing contractor.
- 2) Route properly sized and designed refrigeration lines from the condensing unit to the cabinet. Follow line sizing charts and piping instructions in the condenser unit's manufacturers instruction manual.

- (a) Horizontal suction lines should be pitched downward towards the condensing unit at least $\frac{1}{2}$ " per 10' run to aid the oil drainage. A "P" trap must be installed in the suction line at the foot of every riser to insure oil return.
 - (b) Suction line must be insulated the entire length with Armaflex (or equivalent). Do not run liquid line inside insulation with suction line.
- 3) The remote high/low-pressure control must be mounted, wired and set by the installer.

Leak check condensing unit, cabinet, and all connecting tubing. Cabinet and condensing unit tubing should be checked to ensure no leaks occurred during shipping or from rough handling. Make certain all refrigeration valves are opened and evacuate system below 500 microns. System must hold below 500 microns for 1 minute with pump isolated. Charge the system with refrigerant type specified on the data plates.



I) COMPARTMENT PANEL REMOVAL



DANGER

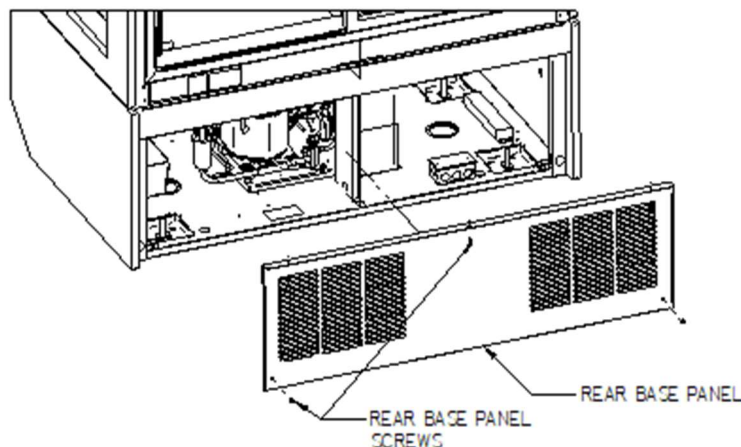
Electric shock hazard.

Do not operate unit with panels removed.

Refrigerated Floor Models: Back Panel

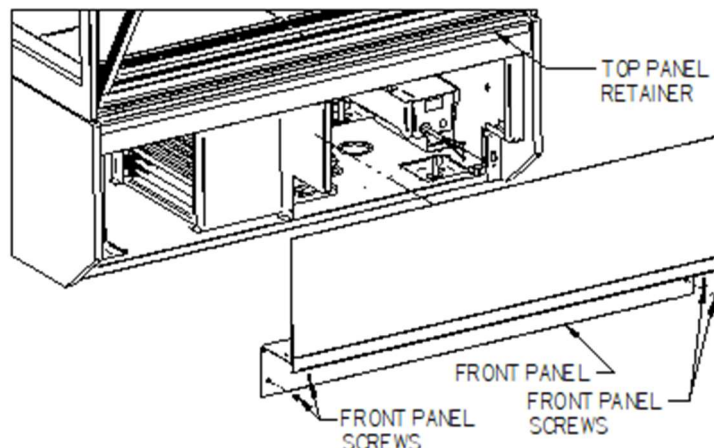
Note: There is no Back Panel on Non-Refrigerated Models

- 1) Disconnect power to Display Case.
- 2) Remove Philips head screws located in each lower corner of panel.
- 3) Remove Philips head screws located on top of panel under the base cross member.
- 4) Pull top of panel outward until lip on bottom of panel clears bottom of base and remove from case.



Refrigerated and Non-Refrigerated Floor Models: Front Panel

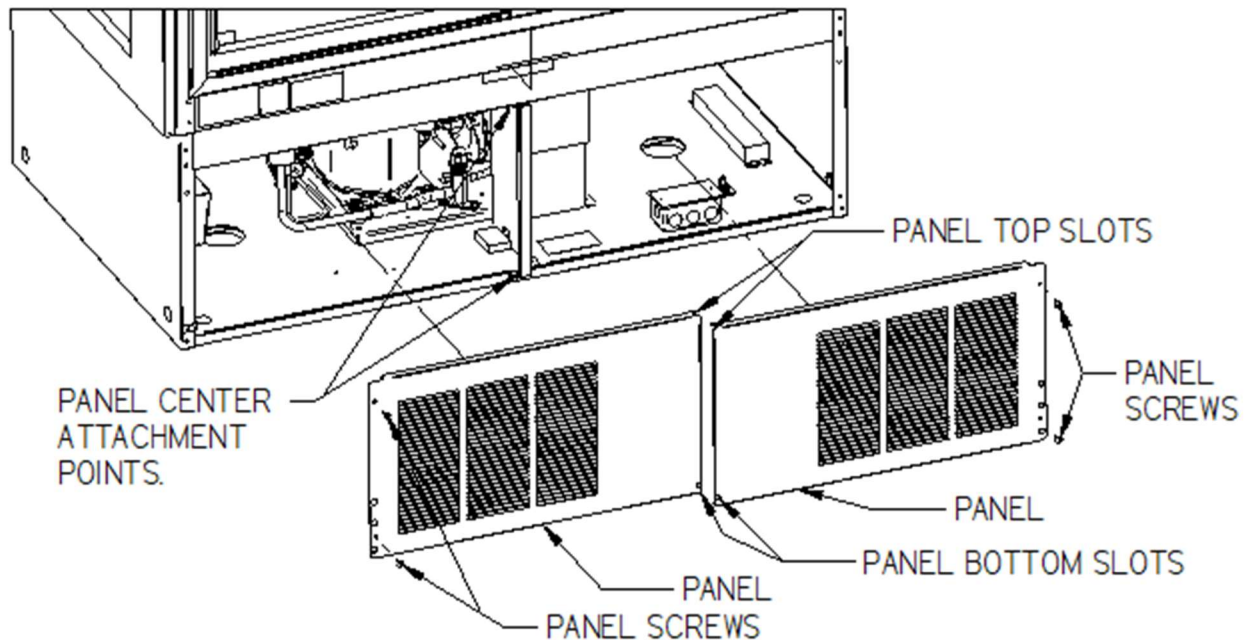
- 1) Disconnect power to Display Case.
- 2) Remove (2) front panel phillips head screws from each lower corner of front panel: (1) is located on front of panel and (1) under the recess behind trim strip. Do not remove the screws holding trim strip to front panel.
- 3) Slide the front panel down until it slides out of the top panel retainer lip at the top of the panel.
- 4) Re-install panel in reverse order.



Refrigerated Counter Models: Front and Rear Panels

On counter drop in models, the panels are split to allow panel to easily be removed out of swinging cabinet doors that may have a center post.

Orientation of louver panels must be determined before placing unit into counter and cabinet must be prepped to allow desired air flow (See **Error! Reference source not found.** section of this manual). When removing and installing panels be sure panels are reinstalled in correct location to allow condenser air flow.



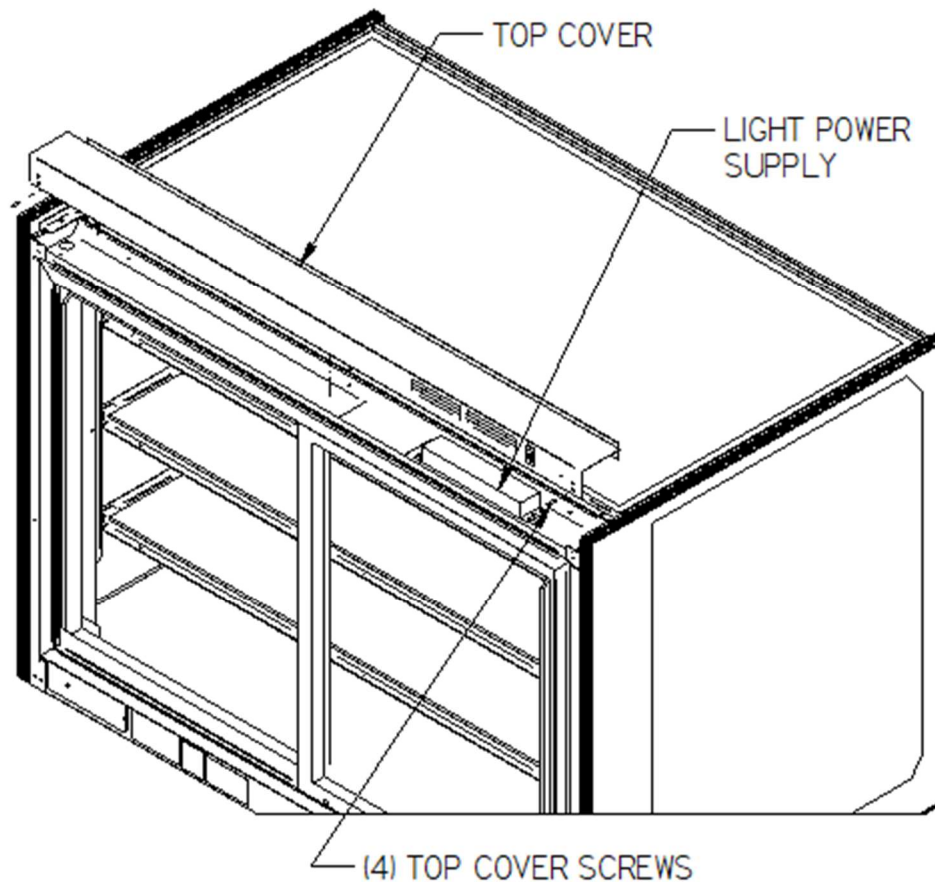
Note: The front and back panels instructions are identical.

- 1) Disconnect power to Display Case.
- 2) Open cabinet door to allow access to condenser compartment.
- 3) Remove (2) panel screws in outside upper and lower corners of panel.
- 4) Slide slotted end of panel out of center attachment point and remove from case. Note: Do not remove screws from center attachment point.

NON-Refrigerated Models Top Cover

There are no components in base on NON-Refrigerated models.

Light Power Supply is located on top of case under the top cover.



- 1) Disconnect power to Display Case.
- 1) Remove the (4) 8-32 top cover screws from top cover.
- 2) Slide the cover back from under the top glass trim.

**DANGER**

Electric shock hazard. Do NOT remove grounding wire.

A ground wire is connected from case to the Top Cover. To prevent electrical shock Do Not remove this wire.

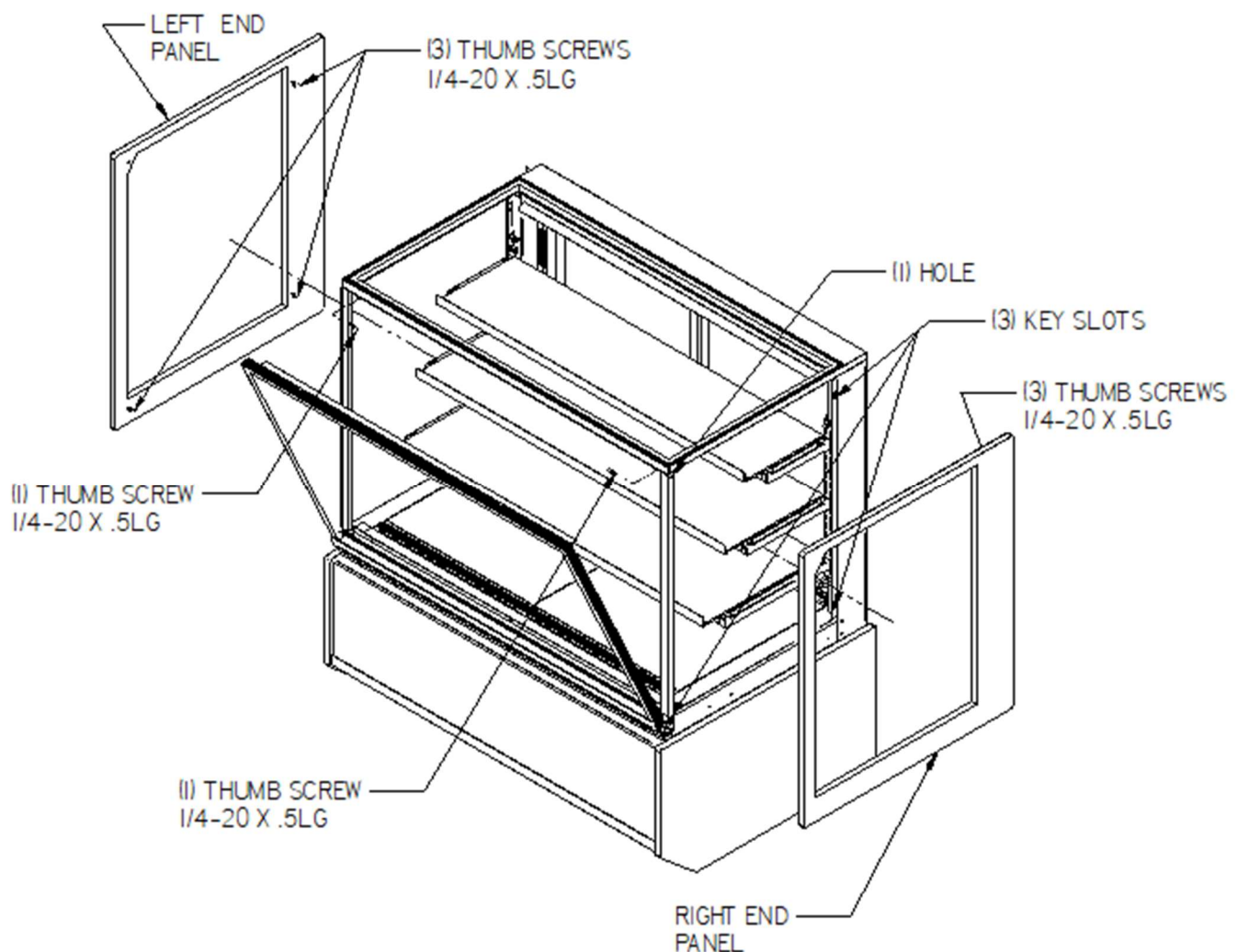
END PANEL INSTALLATION

End Glass is shipped installed on Floor model units.

End glass is shipped loose on counter drop in units and will need to be installed after unit is placed in to counter after lift handles are removed.

When placing cases in a line up, the number of end panels and end panel type may vary. See Case Line Up Installation (Starting at Joining Cases (No End Glass Between)) section of this manual.

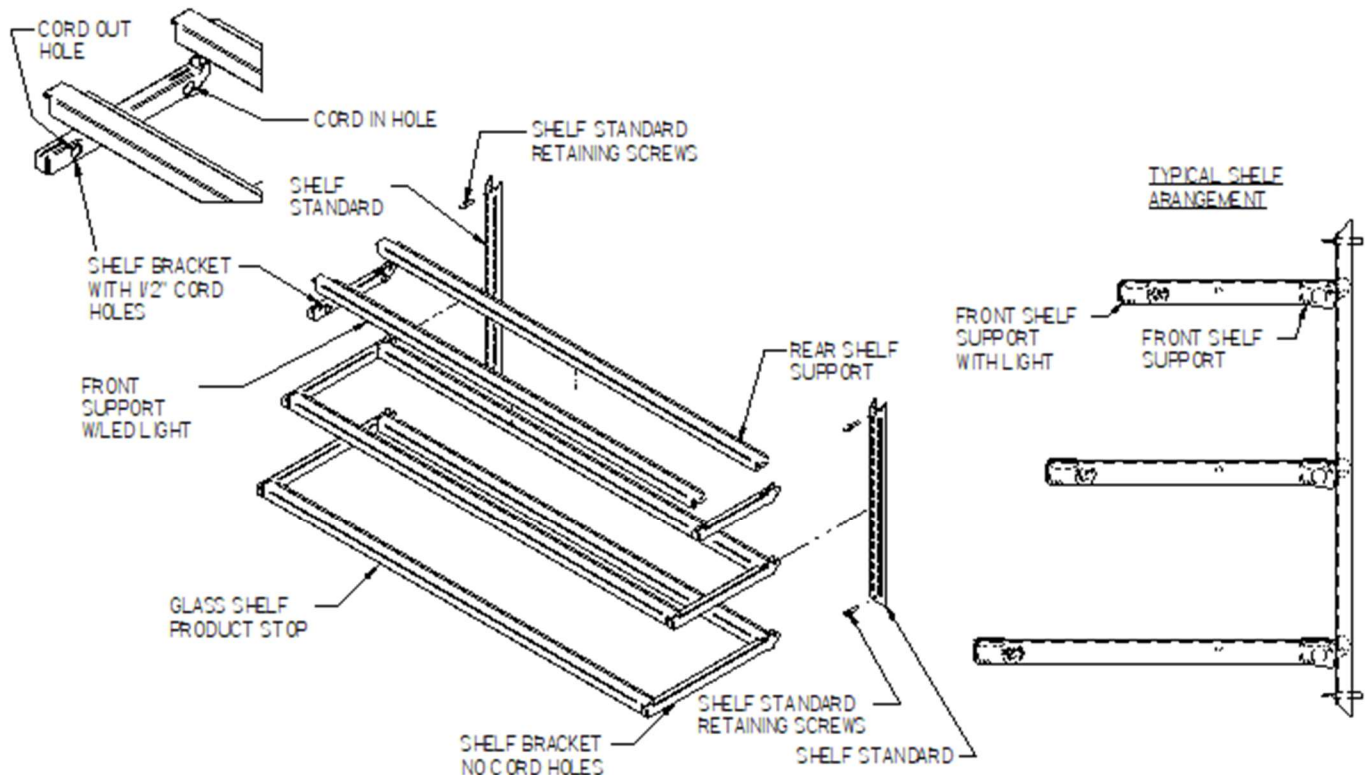
- 1) On each side of case there are (3) keyhole mounting slots for easier installation of glass. There is (1) mounting hole in the front top corner of case to prevent glass from accidentally popping off of end of case.
- 2) Screw (3) thumb screw about halfway into end panel in location of the keyholes in case as shown.
- 3) Align end panel thumb screws with keyholes and hook end panel on to case. Do not tighten thumb screws.
- 4) Align the mounting hole in top front corner of case with top front hole in end panel and attach with 1/4-20 x .5LG thumb screw
- 5) Tighten all (4) thumb screws by hand.
- 6) Remove end panels in reverse order.



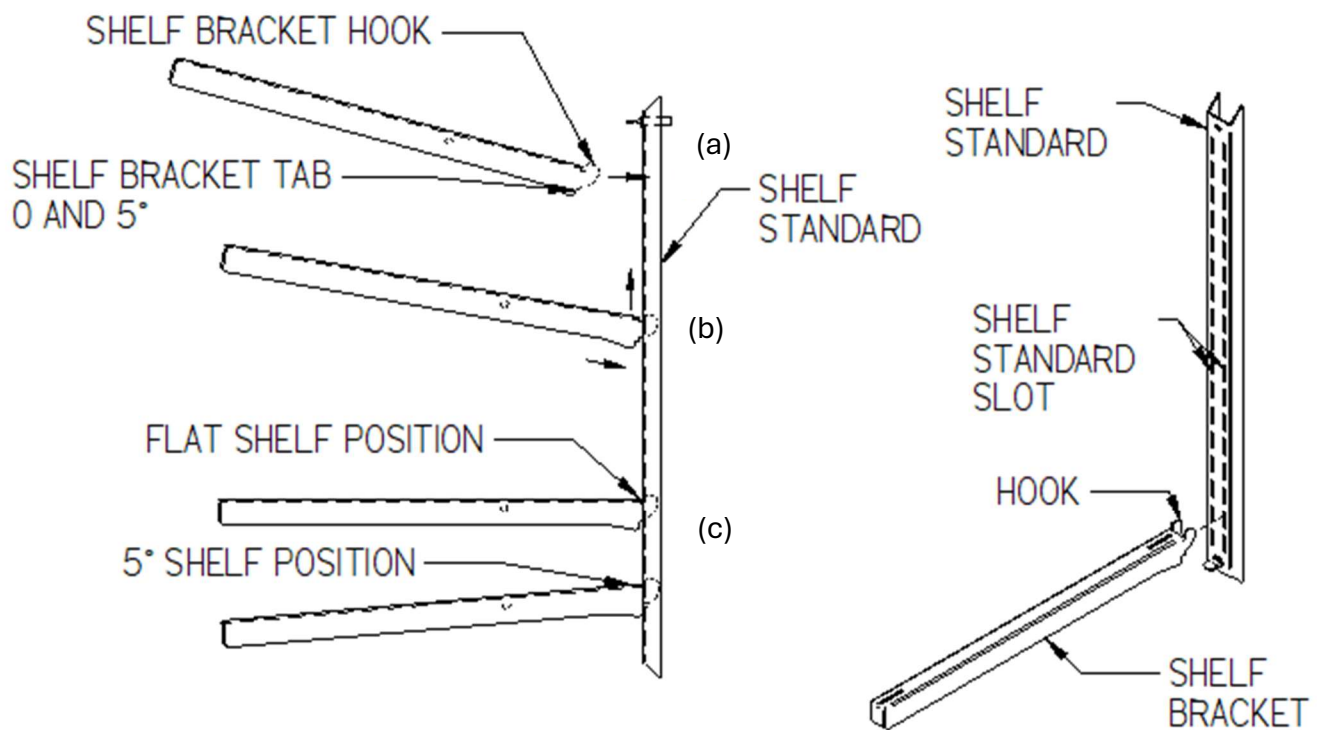
J) SHELVING INSTALLATION & REMOVAL

Shelf Bracket & Supports

NOTE: Different shelf sizes and quantities are optional from factory so shelf bracket quantity and size may vary, but procedure is the same.



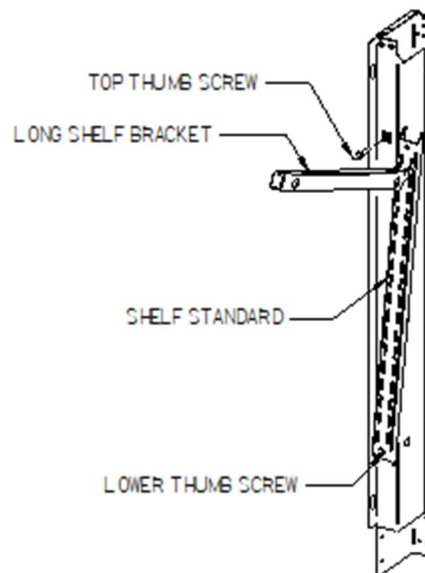
- 1) Turn the light switch to the off position. Remove rear doors as described in the “Rear Door Removal” section of this manual to allow access to interior of case.
- 2) Follow the instruction in the illustration below. Starting with the longest brackets for bottom shelf insert (1) of the (2) shelf brackets in the desired shelf standard slot on one side of the case. Place the long second shelf bracket in the same shelf standard slot on the opposite end of case. Important; The bracket with the 1/2 hole must be on the light cord side of case.
- 3) Repeat procedure for middle shelf brackets and the shortest top brackets. NOTE: Different shelf sizes and quantities are optional from factory so shelf bracket quantity and size may vary, but procedure is the same.
 - (a) Tilt shelf bracket upward and install shelf bracket hook into desired slot.
 - (b) Lift shelf bracket hook up behind back of shelf standard and rotate the shelf bracket downward until desired shelf bracket tab rests on front of shelf standard.
 - (c) Bracket can be either flat 0 degrees 5 degree downward tilt as shown.



- 4) Once all shelf brackets are installed in desired position run each shelf light cord into $\frac{1}{2}$ hole in back of shelf bracket and out the $\frac{1}{2}$ " hole in the front of shelf bracket. The shelf light cord length can be adjusted by pulling out cord from cord grommet or pushing cord back into cord grommet.
- 5) Install front shelf supports with LED lights on to shelf brackets. All shelf supports with the lights are the same. The LED light must be facing towards back of case. Hook shelf support end flanges into front notch of shelf brackets on each side of case.
- 6) Install rear shelf supports with no lights on to shelf brackets. All shelf supports with no lights are the same. The flange on shelf support should be facing towards back of case. Hook shelf support end flanges into rear notch of shelf brackets on each side of case
- 7) Push shelf light cords into end of LED light. NOTE: Do not plug cord in backwards. There are (2) humps on end of cord that must align with humps in end of LED light. Plugging in the cord upside down will Damage LED light strip.
- 8) Manage desired cord lengths by pulling out cord from cord grommet or pushing cord back into cord grommet.

NOTE: Cords always remain in case they are not removable.

Special Length Shelf Installation



If the top shelf has long brackets and needs to be placed in top shelf standard notch position the shelf bracket may hit top panel or divider panel when trying to install it. If top slot is required install bracket as follows:

- 1) Remove the shelving from cases.
- 2) Loosen bottom thumb screw (do not remove)
- 3) Remove top thumb screw
- 4) Rotate the shelf standard towards center of case until the shelf bracket can be slipped into slots of standard.
- 5) Once shelf bracket is in place, rotate the shelf standard back to vertical position and reinstall top thumb screw and tighten.
- 6) Tighten lower thumb screw and install shelving as described in shelving installation.

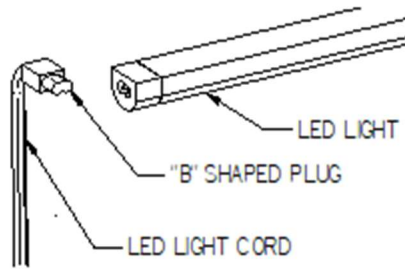
LED Light Plug Connection



NOTICE

The plug must be inserted in correct orientation into LED light. LED light will not light if Connecting plug into LED light upside down. It may also cause LED light failure.

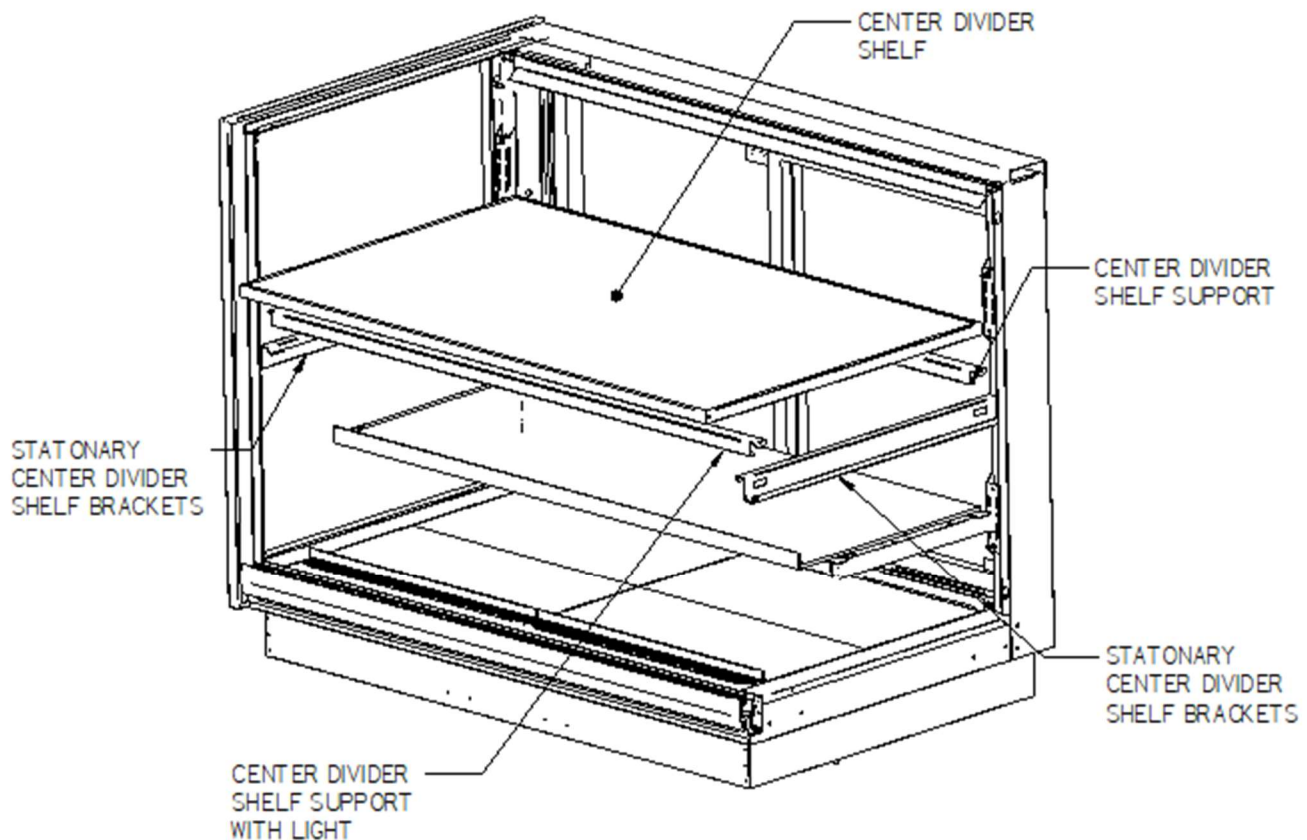
Look at the end of the plug and the receptacle of LED light. On one side of the LED plug there are two bumps and on the other side there is a flat. (Similar to the letter B shape). The LED light has the same configuration. The shapes must align correctly when inserting LED plug into the LED light.



Glass Shelves

- 1) For first time installation attach (2) glass shelf retainer clips to each glass shelf in location shown in illustration. Clean area of glass where glass shelf holder is to be located with rubbing alcohol and let air dry before installing shelf glass holder. Remove backing from tape located on flat side of glass shelf holder. Position the glass shelf holders in the (2) far corners of glass. Repeat for each glass shelf.
- 2) Place front of glass
- 3) Set each glass shelf on to the shelf supports so that the glass shelf retainer clip straddles the rear support. The top glass should be the narrowest glass and the bottom glass shelf should be the widest.

Horizontal Dual Zone Shelf Divider Installation



Horizontal Dual Zone option has a stationary center shelf that divides upper and lower section. This allows the upper section to be about 15 degrees warmer then the lower section.

The center divider brackets are stationary and are mounted in case from the factory.

The 34" tall unit has a shelf above and below the center divider and the 26" tall unit only has a shelf below the center divider. Install these shelves as outlined in the shelving installation section of this manual.

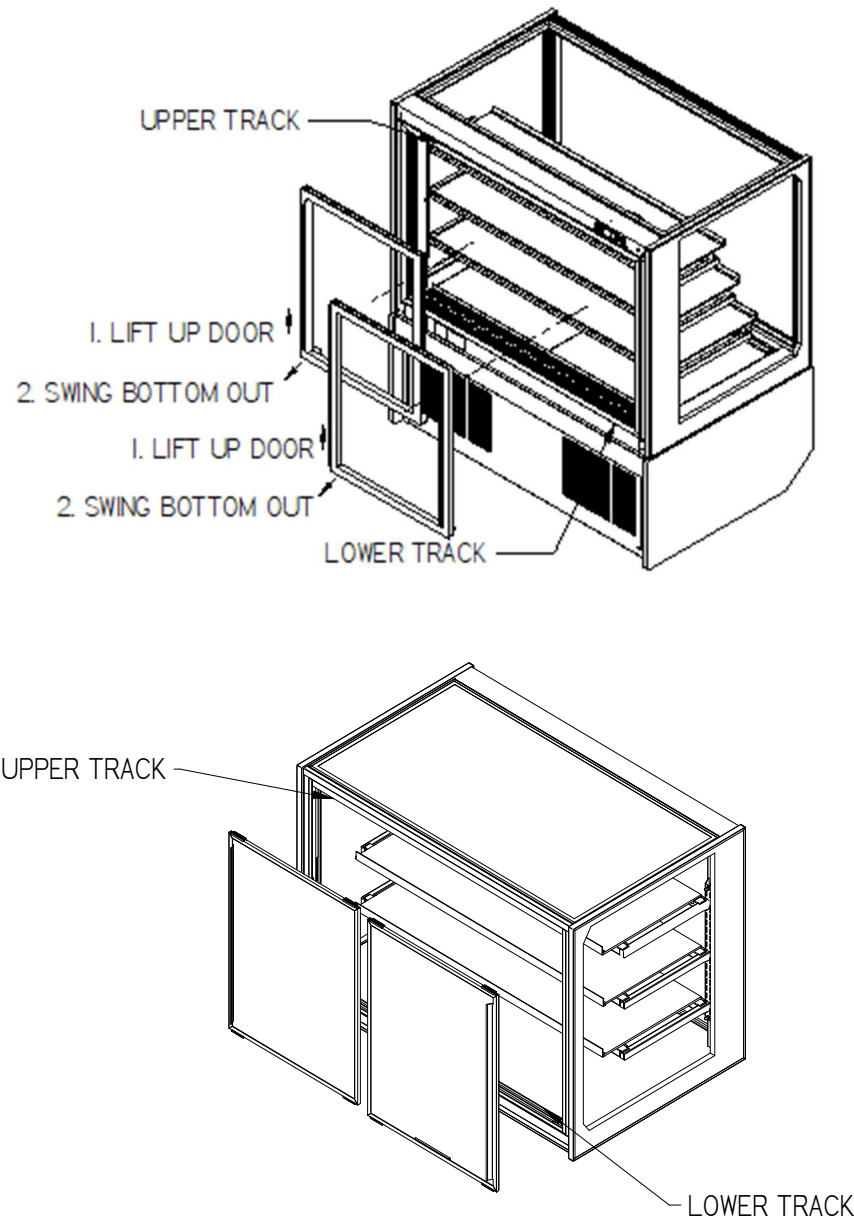
Install both shelf supports by hooking the shelf support into the notches on the center divider shelf brackets. The shelf support with light should be on the front with light facing into case.

The center divider shelf can be installed through the front of case by opening the front glass or through the back of case by removing both doors. Place it across the shelf supports and push towards the doors until it hits the stops located on the back of the shelf brackets.

K) FRONT AND REAR DOORS REMOVAL

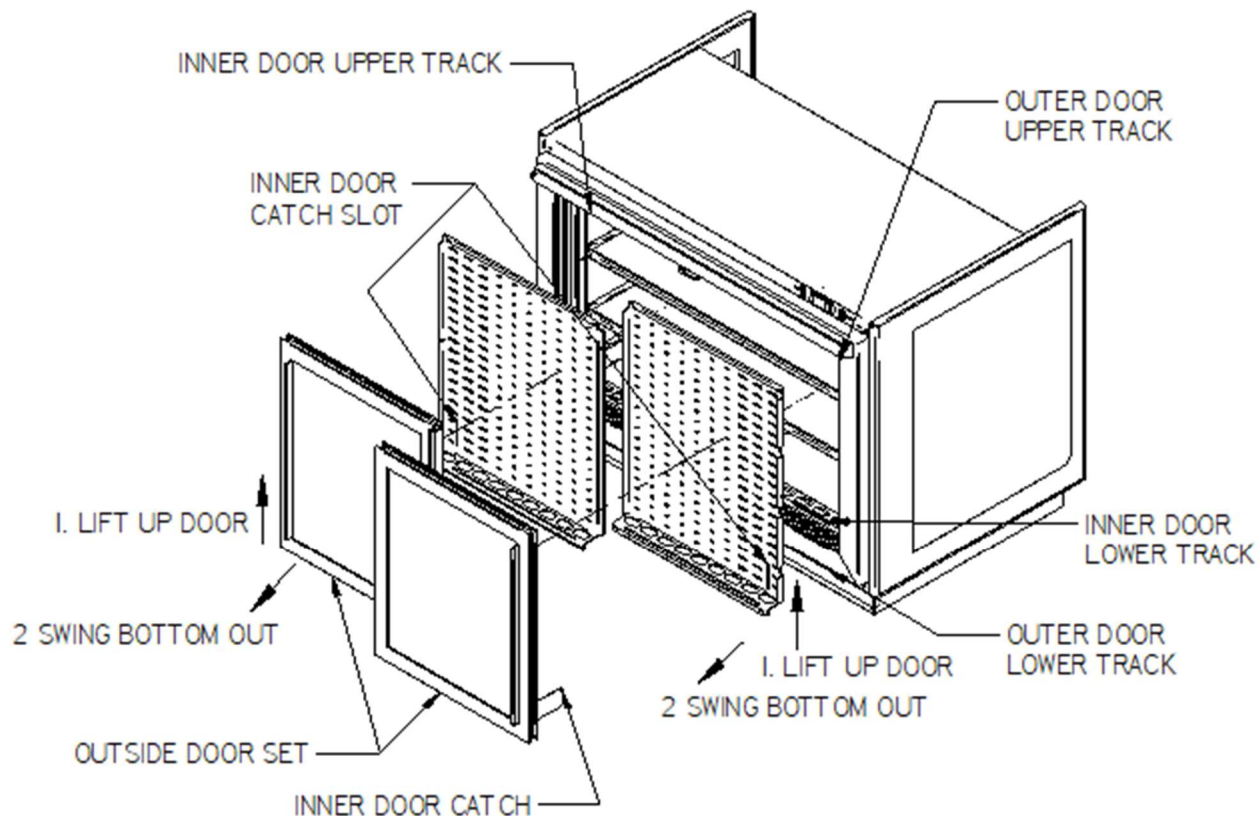
ITR, ITD, ITDSS, AND ITDSSF Models

(Front Doors ITDSS Only)



- 1) Start with the outer door and lift the door upward until the bottom edge of door clears the lower track and then swing the bottom of the door outward and down out of upper track.
- 2) After the outer door is removed repeat the procedure for the inner door.
- 3) Reverse this procedure for door reinstallation. Rear doors are not interchangeable.

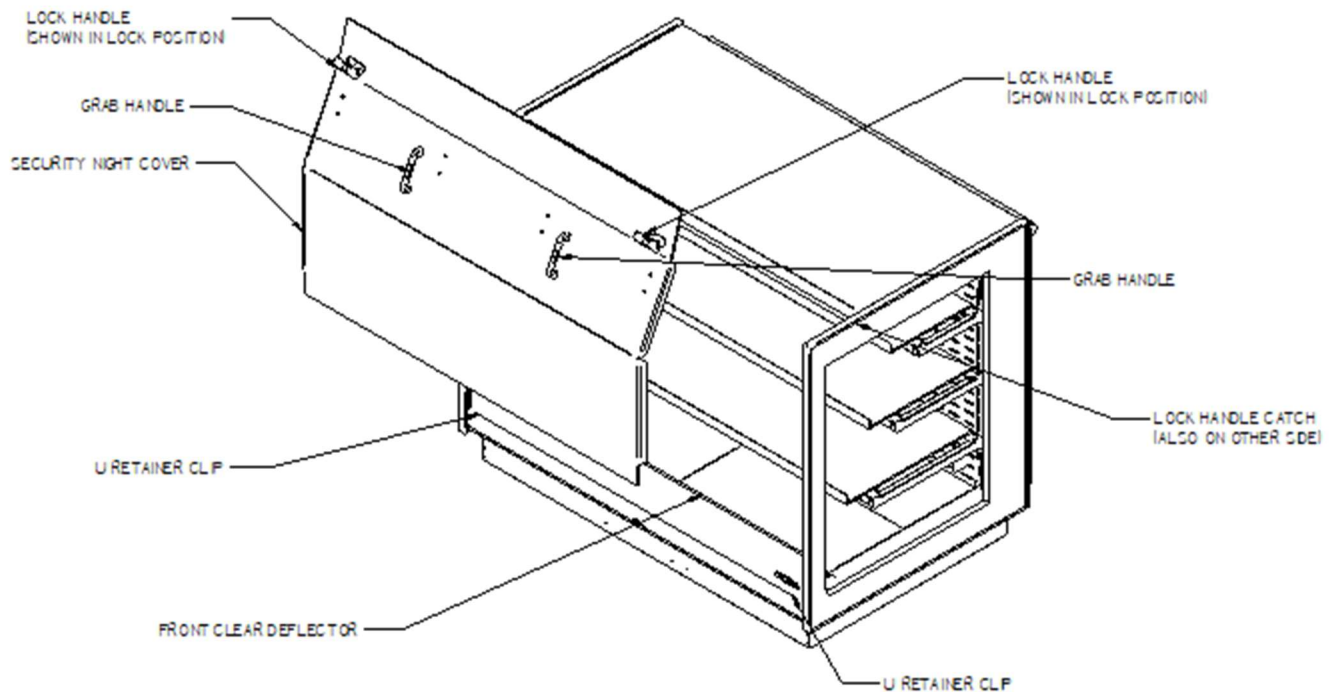
ITRSS Models



- 1) Start with the outer outside door and lift the door upward until the bottom edge of door clears the lower track and then swing the bottom of the door outward and down out of upper track.
- 2) Remove the outer inside door using the same procedure.
- 3) The inner door set can then be removed using the same procedure starting with the inner outside door followed by the inner inside door.
- 4) Reverse this procedure for door reinstallation starting with the inner inside door followed by the inner outside door. Check that the doors slide freely.
- 5) Replace the outside inner door and the outside outer door. Be sure to slide the inner door catch into the inner door catch slot for each door.

Note: None of the doors are interchangeable and they must be replaced in the same location that they were removed from.

L) SECURITY NIGHT COVER (OPTION)



Removal:

- 1) Unlock the lock handles and turn handles to the vertical position to disengage from lock handle catches.
- 2) Grasp the front grab handles and lift the cover straight up and out of the case opening.

Installation:

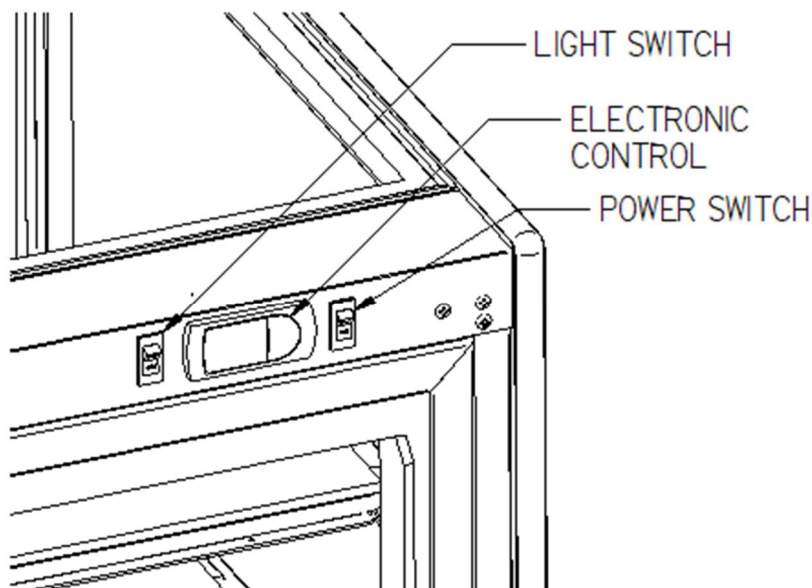
- 1) Turn the lock handle so the latch handle is vertical to the top of the case.
- 2) Holding the grab handles place the bottom flange of the security night cover inside the “U” retainer clips located on each side of case opening behind the front clear deflector. There also may be a “U” retainer clip in the center of the case that must also engage the security night cover flange.
- 3) Set the top flange of the security cover down against the top glass handle.
- 4) Turn the lock handles so they engage the lock handle catches and use the key to lock them in place.

M) OPERATING INSTRUCTIONS

Control Description

**NOTICE**

This refrigerated display case is designed to operate in a maximum environment of 80°F and 55% relative humidity. Exceeding these limits will cause poor case performance and sweating of glass panels.

**Power Switch (Refrigerated Models Only)**

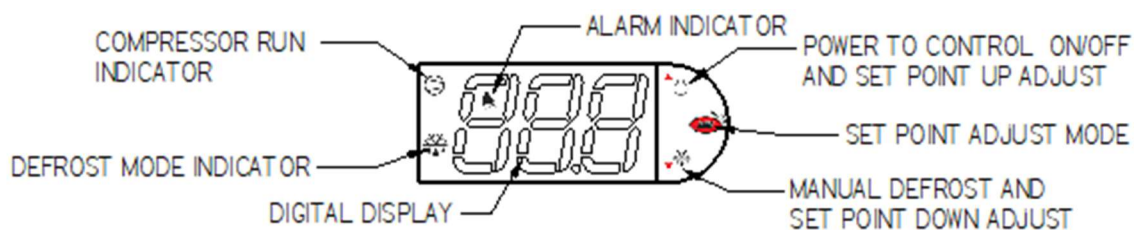
The unit has a power switch that turns off power to most of the unit. This does NOT include the condensate evaporator and base fan. To complete disconnect power, unplug and/or switch off breaker.

Light Switch (All Models)

The unit has a light switch that turns on and off the interior lights of unit.

Electronic Temperature Control (Refrigerated Models Only)

The temperature control allows the user to adjust the temperature of the display merchandiser to their needs. When not in adjustment mode the read out shows relative interior case temperature.



Button Overview

	Press and hold this button for 3 seconds to turn system on (if off) or off (if on). Also used to adjust set point when in set point adjust mode
	Press to enter set point adjust mode, confirm set point changes, and mute alarms.
	Press and hold this button for 3 seconds to initiate a manual defrost (and cancel defrost if initiated), also adjusts set point down when in set point adjust mode

Powering on control

To turn refrigeration control power on, press and hold  for approx. five seconds. The display will read "On" while the button is depressed. When the control powers on, the display will read the relative current case temperature (on initial startup it will show room temperature). The compressor run indicator  will illuminate on the display, meaning that the compressor is running. (Note: the control may already be in the on mode when shipped from factory).

To turn refrigeration control power to off, press and hold  for approx. five seconds. The display will read "Off" while the button is depressed. When the control powers off the display will flash back and forth between the relative current case temperature and "Off". The compressor run indicator  will be off on the display. When refrigeration control is in the off-mode cabinet lights and evaporator fans will still operate, but the compressor will not turn on causing the case to gradually reach room temperature.

(NOTE: Cases supplied with optional fan control unit will turn on and off both the compressor and the evaporator fans when control is turned on and off).



Adjusting the set point

The set point is what determines how cold the display case will hold food and beverage. To adjust the set point press and hold the  button approx. 5 seconds until the display begins to flash a number. Then press the  button to scroll number up (colder) or press the  button to scroll number lower (warmer). There are nine (9) available set points numbers, the higher the number of the set point, the colder the display case will run, with setting “9” being the coldest and setting “1” being the warmest. Once you have chosen your desired setting press the  button again to confirm your choice.



Entering manual defrost mode

In order to initiate a manual defrost, press and hold the  button approx. 5 seconds. The control will read “dEF” while the button is being held. The defrost is initiated when the defrost mode indicator  illuminates on the display. The control display will then return to reading the case temperature. When the defrost mode indicator  turns off, the defrost is complete and the compressor will turn back on illuminating the compressor run indicator .

Error codes

It is possible for error codes to be displayed on the control screen. In the event of a malfunction an alarm will sound and the alarm indicator  will be displayed on the display. An error code or codes will flash intermittently on the display. If there are multiple codes, the display will continuously cycle through them. The following photo shows error code “E0” as an example.



Mute: You may mute the alarm by pressing and releasing the wrench button. The red ringing bell and all error codes will still be displayed. When the fault is remedied, the control will return to normal operation and will automatically clear the codes from the display.

Error codes may be encountered if either the controller or the display case is malfunctioning. The following is a list of error codes that may be encountered.

Table 1 - Error Codes and Resolutions

Code	Description	Cause	Resolution
E0	Temperature probe error	Probe signal is interrupted or short-circuited	1.Check to ensure probe wires and quick disconnect are secure in control. 2.Check probe resistance to table below. If 0 resistance is present, check wiring insulation. If infinite resistance is present, check for breaks in wiring (meter will likely read overload or very high in the mega-ohm range). 3.Ensure that probes are wired per the wiring diagram provided. 4.Replace probe if other remedies fail, or if probe resistance deviates from “Error! Reference source not found.” Error! Reference source not found.
E1	Defrost probe error	See E0	
EE	Unit parameter reading error	Operating conditions	1.Remedy abnormal operating conditions. The control is rated to operate in a range of 14 to 122°F (-10 to 50°C) and less than 90%RH non-condensing. 2.Replace control if problem persists.
EF	Operating parameter reading error	See EE	

Table 2 - Temperature Probe Common Resistance Chart

Probe Temp	Maximum Resistance [Ω]	Normal Resistance [Ω]	Minimum Resistance [Ω]
32°F(0°C)	27.83	27.28	26.74
77°F(25°C)	10.1	10	9.9
212°F(100°C)	1	0.97	0.94

ELECTRONIC CONTROL OPERATION (Refrigerated Models Only)

This unit is equipped with an electronic temperature control. The control parameters are set at the factory and cannot be manually changed in the field. The preset control parameters are listed on the chart in the Settings Chart below.

Operation

The control uses two sensors, one located in the air stream and one located on the evaporator coil. The sensor located in the air stream is referred to as the temperature control sensor. The sensor located on the evaporator coil is referred to as the defrost probe.

The temperature control sensor is located on the plastic tub behind the evaporator coil to the left in the cold air stream. The sensor location is critical for proper operation on the unit. Do not move or relocate this sensor.

The coil sensor is strapped to the evaporator coil. This sensor location is critical for proper operation of the unit. Do not move or relocate this sensor.

The temperature control is set to cut in at 39°F (3.9°C). The Temp control cuts out at 26°F (-3.3°C) at the coldest setting “9” and 36°F (2.2°C) at the warmest setting “1”.

Defrost Cycle

The control is programmed to initiate defrost via two different methods. There are 3 programmed defrost cycles in the case which will initiate a defrost cycle every 8 hours. The unit does not have a time clock so the defrost cycles cannot be set for any specific time of day.

The unit also has an ‘On demand’ defrost feature that will initiate a defrost when the temperature differential between the evaporator temperature and the air temperature is more than 20°F (11.1°C) for 5 minutes after 30 minutes into the refrigeration cycle (e.g. if the air stream probe measures 42°F/5.6°C or greater and the defrost probe measures 20°F/-6.7°C or lower for five minutes). Once initiated the defrost cycle will terminate when evaporator coil sensor reaches 43°F (6.1°C).

If a manual defrost is required, one can be initiated by pressing and holding the down arrow for three (3) seconds. This is typically unnecessary and should only be performed if special circumstances require it.

Initial Startup

After all the checks outlined in the installation section of this manual have been made, the case is ready to be put into service. Turn on the Power at the breaker box and flip the Power Switch and Light Switch on unit to the on position. Also ensure that the control is powered on as described above.

Refrigerated Models

At start up from a warm unit, it is recommended that the temperature control is set to a mid-setting, such as 5. After the unit has gone through several cycles, adjust the control to a warmer or a colder setting if necessary to maintain desired product temperature. Allow refrigerated models to run for at least two hours before placing pre-chilled product into display area.

Placing Product into Case

After completing shelving installation as outlined in “Shelving Installation and Removal” section of this manual you may begin placing product into the display case.

- Do not exceed 100 pounds of weight per shelf. Heavy product should be distributed evenly across the entire shelving area.
- Determine desired shelving location and angle before placing product in case. Product must be removed to readjust shelf location and angle.

Refrigerated Models

- Do not overhang the front shelves with product. Product may overhang rear of shelf, but allow a minimum of 1-1/2” between product and rear door. Improper clearance in front and rear of shelf will block the refrigerated airflow and could cause product loss.
- Do not block the slots along the front or rear of the case display pan. Covering these slots will block the refrigerated airflow and could cause product loss.
- The display pan is removable for cleaning and can become dislodged in shipment. To ensure proper airflow and performance of the case, make sure that the display pan is pushed completely down into evaporation tub. Check that the pan is installed properly before placing product the display pans.
- Allow a minimum of 2” between the top of product and bottom of shelf.
- **CASE SHOULD BE STOCKED WITH PRE-CHILLED PRODUCT ONLY.**



NOTICE

This refrigerated display case is designed to operate in a maximum environment of 80°F and 55% relative humidity. Exceeding these limits will cause poor case performance and sweating of glass panels.

N) MAINTENANCE



Important: Read Section REFRIGERATION WARNING INSTALLATION-REPAIR-DECOMMISSIONING” of this manual starting on page 9.

All refrigeration and electrical work shall be performed by certified technicians.

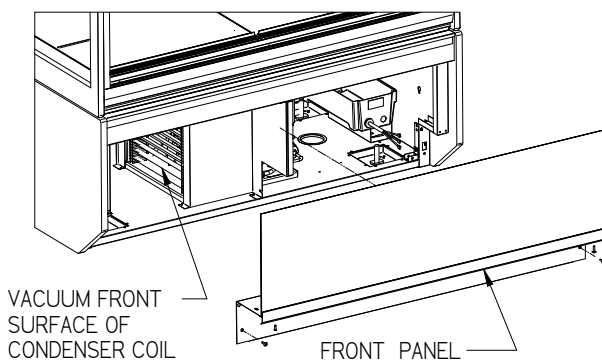
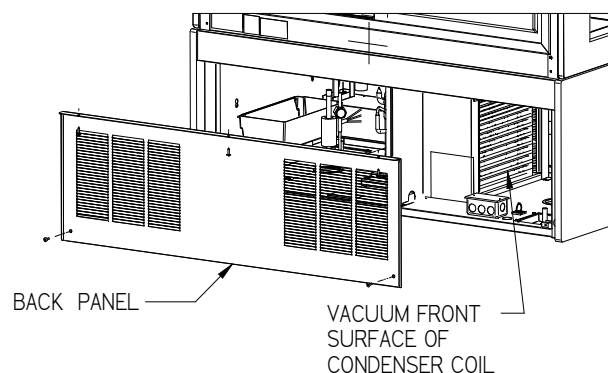
Cleaning Condenser Coil (All Self-Contained Refrigerated Models)



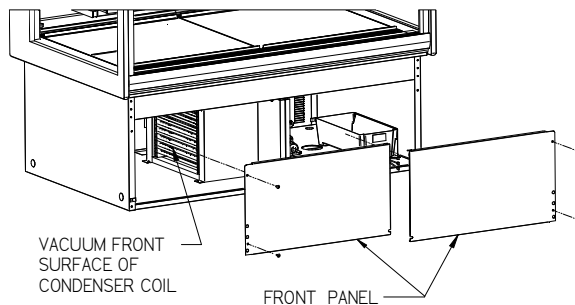
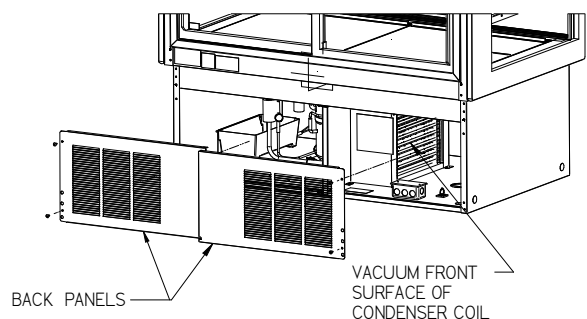
NOTICE

Condenser coil must be cleaned a minimum of twice per month to ensure proper refrigeration performance and prevent compressor failure. In some environments, it may be necessary to clean more frequently. **FAILURE TO CLEAN CONDENSER COIL WILL VOID COMPRESSOR WARRANTY.**

FLOOR ITR MODEL



COUNTER ITR MODEL



The condenser can be cleaned from either the front or the back of case depending on which is more accessible.

- 1) Disconnect power to the unit at the breaker.

- 2) Remove the back or front panels located on the base or condenser compartment of unit. See COMPARTMENT PANEL REMOVAL section of this manual.
- 3) Carefully vacuum the front surface of condenser coil. Take care not to bend coil fins with vacuum cleaner nozzle.
- 4) Reinstall all panel and retaining screws and reconnect power.

Top LED Light Replacement

- 1) Turn power switch and light switch to off position.
- 2) Unplug 24v DC power wire from end of existing LED light strip.
- 3) Snap existing LED strip out of retaining clips.
- 4) Snap the new LED light strip into retainer clips
- 5) Reattach the 24v DC power wire into end of the new LED light strip. NOTE: Do not plug cord in backwards. There are (2) humps on end of cord that must align with humps in end of LED light. Plugging in the cord upside down will Damage LED light strip.
- 6) Turn power switch and light switch to on position.

Shelf LED Light Replacement

- 1) Turn power switch and light switch to off position.
- 2) Remove Shelf from display case.
- 3) Unplug 24v DC power wire from end of existing LED light strip.
- 4) Remove the shelf support with light from case.
- 5) Use a putty knife between the LED and the shelf support to cut the double-sided adhesive holding LED light strip to case. Clean as much adhesive off of shelf support as possible.
- 6) Attach new LED light strip to shelf support using double sided adhesive.
- 7) Reinstall shelf support and shelf into case.
- 8) Reattach the 24v DC power wire into end of the new LED light strip. NOTE: Do not plug cord in backwards. There are (2) humps on end of cord that must align with humps in end of LED light. Plugging in the cord upside down will Damage LED light strip.
- 9) Turn power switch and light switch to on position.

O) CLEANING INSTRUCTIONS

Daily Cleaning

The case should be cleaned thoroughly, as described in the weekly cleaning section, before it is used for the first time.

	NOTICE Avoid splashing or soaking any electrical components with water to prevent electrical damage to the case. Shut off lights and power switches, unplug power cord and/or disconnect at the breaker. Remove all product from case. Allow sufficient time for the unit to reach room temperature before proceeding with cleaning. Remove all product from case before proceeding with cleaning procedure. Acrylic front air deflector, plastic inner doors, and lift up doors require special washing procedures to prevent hazing and yellowing of material. This case is not designed to be cleaned by flushing.
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ITR, ITD, ITDSS and ITDSSF Models

Note: For major spills or foreign material buildup use complete weekly cleaning instructions.

Note: Detergents are not recommended and do not use abrasive cleaners or pads to prevent scratching of surfaces.

- 1) Clean all foreign materials from the door opening.
- 2) Wipe complete interior areas of case using a damp cloth.
- 3) To allow easier access to clean interior tilt the front glass forward. Tilt the front glass out by grabbing the top edge of glass with fingertips and pulling it away from magnetic strips on case. Tilt glass until it stops at about 30 degrees angle.
 - (a) **IMPORTANT:** Hold on to the glass until it stops and do not let it fall freely. Allowing glass to fall may damage glass or hinge.
- 4) The glass can then be cleaned with common window cleaners.
 - (a) **IMPORTANT:** Do not allow glass cleaner to contact any of the Acrylic front deflector, front lift-up doors, and plastic inner doors.
- 5) The remaining exterior surface should be wiped down using any ammoniated cleaners or soapy warm water.

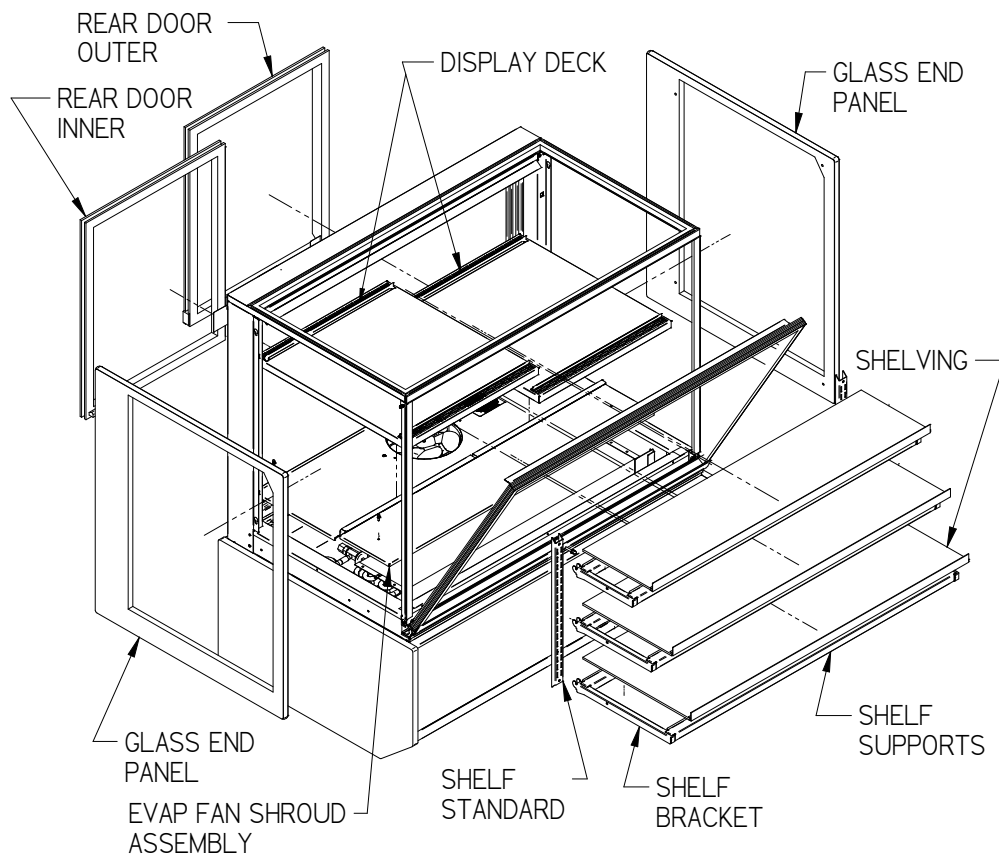
	IMPORTANT Cleaning the Acrylic-plastic security night cover requires special care to prevent hazing of material. Lightly dust (not wipe) the surface with clean, soft cloth. Then the surface can be wiped carefully with a soft, wet cloth or chamois. The cloth or chamois must be kept free of grit by frequently rinsing in clean water. Grease and oil can be removed with mild, non-abrasive soap and water. Do not use window cleaners or kitchen scouring compounds. DO NOT use solvents such as Acetone, Benzene, Carbon Tetrachloride, and Lacquer Thinners. Food-safe spray wax can be applied and wiped with a clean, soft cloth. The wax tends to fill in and hide small scratches.
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Weekly Cleaning ITR, ITD, ITDSS AND ITDSSF Models

This procedure is recommended on a weekly basis. It may need to be performed more often if necessary to maintain a clean, sanitary case. The case should be cleaned to this procedure before using it the first time.

	NOTICE Avoid splashing or soaking any electrical components with water to prevent electrical damage to the case. Shut off lights and power switches, unplug power cord and/or disconnect at the breaker. Remove all product from case. Allow sufficient time for the unit to reach room temperature before proceeding with cleaning. Remove all product from case before proceeding with cleaning procedure. Acrylic front air deflector, plastic inner doors, and lift up doors require special washing procedures to prevent hazing and yellowing of material. This case is not designed to be cleaned by flushing.
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Note: For major spills or foreign material buildup perform the weekly cleaning instructions.

ITR & ITD Models

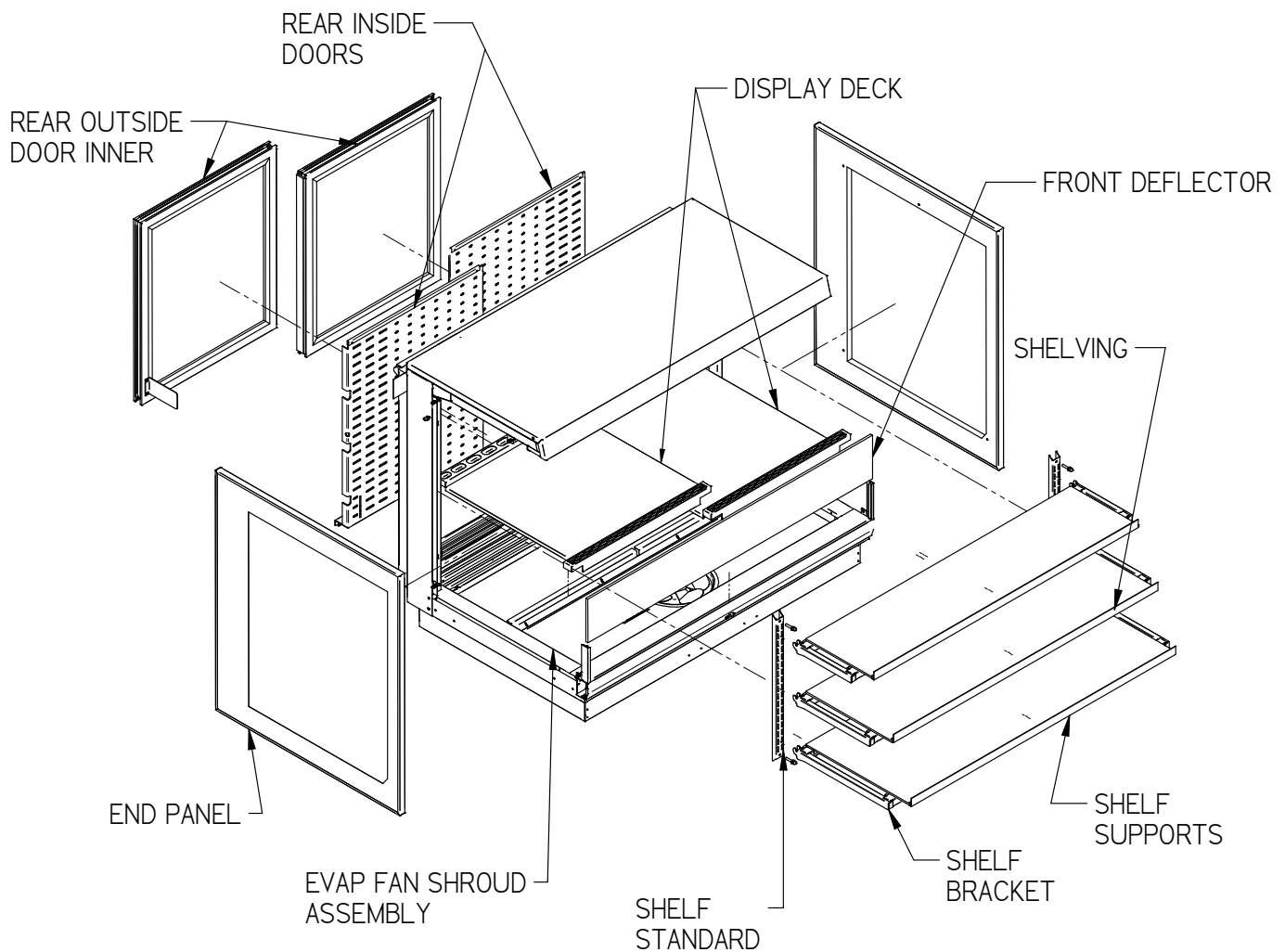
- 1) Disconnect power to display case: Turn off light and power switches then unplug and/or disconnect at the breaker.
- 2) Remove the rear doors as described in rear door removal section
- 3) Remove all interior shelving as described in the shelving installation and removal section of this manual.
- 4) Remove both shelf standards from interior of case by removing thumb screws located at top and bottom of shelf standard.
- 5) Remove end glass as described in end panel removal section of this manual.
- 6) Refrigerated Models Only
 - (a) Lift the Display Deck(s) up and out of evaporator tub and remove from case.
 - (b) Remove the evaporator fan shroud by removing the thumbscrews along the backside of evaporator fan shroud and the (2) thumb screws on each side of evaporator coil. Unplug fan(s) from wire harness and remove evaporator fan shroud with fan attached from case.
- 7) Clean the entire interior of the case using warm soapy water. Wipe off all soapy water with a damp cloth and allow to dry.
- 8) Clean all shelves, shelf support bars, shelf standards, shelf brackets, and display deck using warm soapy water and a brush. Rinse thoroughly and allow to dry.

9) Clean behind front glass hinge using warm soapy water and sweeping debris to each end and Clean all foreign material from inner and outer rear door tracks using warm soapy water and a brush. Apply a light film of lubricant such as PAM to make the doors operate smoother.

Clean both sides of the doors, end glass and front glass using any common window cleaner.

	Important Do not allow glass cleaner to contact any of the Acrylic front deflector, front lift-up doors, and plastic inner doors. The front glass can be tilted forward to allow easier access to clean interior. Tilt the front glass out by grabbing the top edge of glass with finger tips and pulling it away from magnetic strips on case. Tilt glass until it stops at about 30 degrees angle. Hold on to the glass until it stops and do not let it free fall or damage to glass or hinge may occur. Close the glass by pushing glass back up against magnetic gasket in closed position.
	IMPORTANT Cleaning the Acrylic-plastic security night cover requires special care to prevent hazing of material. Lightly dust (not wipe) the surface with clean, soft cloth. Then the surface can be wiped carefully with a soft, wet cloth or chamois. The cloth or chamois must be kept free of grit by frequently rinsing in clean water. Grease and oil can be removed with mild, non-abrasive soap and water. Do not use window cleaners or kitchen scouring compounds. DO NOT use solvents such as Acetone, Benzene, Carbon Tetrachloride, and Lacquer Thinners. Food-safe spray wax can be applied and wiped with a clean, soft cloth. The wax tends to fill in and hide small scratches.

10) Reassemble the case in reverse order.

ITRSS Models

- 1) Disconnect power to display case: Turn off light and power switches then unplug and/or disconnect at the breaker.
- 2) Remove the outer and inner rear doors as described in rear door removal section
- 3) Remove the front deflector by lifting it up and out of retainer channel.
- 4) Remove all interior shelving as described in the shelving installation and removal section of this manual.
- 5) Remove both shelf standards from interior of case by removing thumb screws located at top and bottom of shelf standard.
- 6) Remove end panels as described in end panel removal section of this manual.
- 7) Lift the Display Deck(s) up and out of evaporator tub and remove from case.
- 8) Remove the evaporator fan shroud by removing the thumbscrews along the backside of evaporator fan shroud and the (2) thumb screws on each side of evaporator coil. Unplug fan(s) from wire harness and remove evaporator fan shroud with fan attached from case.

- 9) Clean the entire interior of the case using warm soapy water. Wipe off all soapy water with a damp cloth and allow to dry.
- 10) Clean all shelves, shelf support bars, shelf standards, shelf brackets, and display deck using warm soapy water and a brush. Rinse thoroughly and allow to dry.
- 11) Clean behind front glass hinge using warm soapy water and sweeping debris to each end and
- 12) Clean all foreign material from inner and outer rear door tracks using warm soapy water and a brush. Apply a light film of lubricant such as PAM to make the doors operate smoother.
- 13) Clean both sides of the doors, end glass and front glass using any common window cleaner.

	Important Do not allow glass cleaner to contact any of the Acrylic front deflector, front lift-up doors, and plastic inner doors. The front glass can be tilted forward to allow easier access to clean interior. Tilt the front glass out by grabbing the top edge of glass with finger tips and pulling it away from magnetic strips on case. Tilt glass until it stops at about 30 degrees angle. Hold on to the glass until it stops and do not let it free fall or damage to glass or hinge may occur. Close the glass by pushing glass back up against magnetic gasket in closed position.
	IMPORTANT Cleaning the Acrylic-plastic security night cover requires special care to prevent hazing of material. Lightly dust (not wipe) the surface with clean, soft cloth. Then the surface can be wiped carefully with a soft, wet cloth or chamois. The cloth or chamois must be kept free of grit by frequently rinsing in clean water. Grease and oil can be removed with mild, non-abrasive soap and water. Do not use window cleaners or kitchen scouring compounds. DO NOT use solvents such as Acetone, Benzene, Carbon Tetrachloride, and Lacquer Thinners. Food-safe spray wax can be applied and wiped with a clean, soft cloth. The wax tends to fill in and hide small scratches.

- 14) Reassemble the case in reverse order.

Weekly Exterior Cleaning All

- 1) Clean the front, end glass and rear doors using any common window cleaner.
 - (a) IMPORTANT: Do not allow glass cleaner to contact any of the Acrylic front deflector, front lift-up doors, and plastic inner doors.
- 2) The exterior surfaces should be wiped down using any ammoniated cleansers or warm soapy water.
- 3) Clean the Acrylic plastic front deflector carefully.

**IMPORTANT**

Cleaning the Acrylic-plastic security night cover requires special care to prevent hazing of material. Lightly dust (not wipe) the surface with clean, soft cloth. Then the surface can be wiped carefully with a soft, wet cloth or chamois. The cloth or chamois must be kept free of grit by frequently rinsing in clean water.

Grease and oil can be removed with mild, non-abrasive soap and water.

Do not use window cleaners or kitchen scouring compounds.

DO NOT use solvents such as Acetone, Benzene, Carbon Tetrachloride, and Lacquer Thinners.

Food-safe spray wax can be applied and wiped with a clean, soft cloth. The wax tends to fill in and hide small scratches.

P) SERVICE

CAUTION

RISK OF ELECTRIC SHOCK
DISCONNECT POWER BEFORE
SERVICING UNIT

Before any service work is performed on the case, make sure all power is disconnected to the case.



Important: Read Section REFRIGERATION WARNING INSTALLATION-REPAIR-DECOMMISSIONING” of this manual starting on page 9.

All refrigeration and electrical work shall be performed by certified technicians.

To find a service company in your area, please visit our website at www.federalindustries.com. There you can also find self-service tools to help you get the answers you need faster!

For Warranty Service Requests & ALL Technical Support please contact:

- Phone: (800) 356-4206 and choose the Tech Support/Warranty Option
- Email: Service@federalind.com

For Warranty Compressors please contact the Parts Department:

- Phone: (800) 356-4206 and choose the Warranty Parts Option
- Email: Parts@Federalind.com



Federal Industries has partnered with Parts Town for ALL Non-Warranty Part Identification, Pricing, Lead Times, Orders & Freight Quotes. Please contact Parts Town directly if you need parts:

- Website: PartsTown.com
- Email: CustomerService@PartsTown.com
- Phone: 833-809-8188

Special Service Situations

There are rare occasions when the refrigerant charge must be evacuated from a case in order to perform service work. In those situations, Federal Industries recommends that the refrigerant charge

be evacuated into a recovery system to prevent the possibility of hydrofluorocarbons (HFC's) from being released into the atmosphere.

If moisture or liquid is observed around or under a Federal Industries case, an immediate investigation should be made by qualified personnel to determine the source of the moisture or liquid. The investigation made should determine if the case is malfunctioning or if there is a simple housekeeping problem.

**CAUTION**

Moisture or liquid around or under a case is a potential slip/fall hazard for persons walking by or working in the general area of the case. Any case malfunction or housekeeping problem that creates a slip/fall hazard around or under a case should be corrected immediately.

Pre-Service Checklist

	CAUTION Electric Shock Hazard. Before servicing case turn off power at the main breaker of fuse box.
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You may avoid the cost and inconvenience of an unnecessary service call by first reviewing this checklist of frequently encountered situations that can cause unsatisfactory case performance.

SITUATION	CHECKLIST	NOTES (Note any findings and share with technician when calling for service)
<i>Case Does Not Operate</i>	☐ Check for disconnected power supply. ☐ Check for tripped breaker or blown fuse. ☐ Check that power switch is on.	
<i>Lights Do Not Operate</i>	☐ Check that light switch is on. ☐ Be sure light cord is properly seated into LED light strip. ☐ Is the light cord plugged in to light strip upside down.	
<i>Case Temperature Too Warm</i>	☐ Check that the cold air inlet and outlet slots are not blocked. ☐ Be sure that the rear doors are closed and tightly sealed. ☐ Check for a blocked or dirty condenser coil fins. ☐ Check cold airflow. Lack of adequate cold airflow could be a defective evaporator fan or blocked evaporator coil. ☐ Check that paper or foreign material is not blocking evaporator. ☐ If the evaporator coil is blocked due to excessive frost, initiate a manual defrost on the electronic temperature control as described in the Using Electronic Temperature Control section of this manual. ☐ Is the case installed properly to allow adequate air flow to and from condenser? ☐ Check that the electronic control settings are correct. ☐ Check environmental conditions. This case is designed to operate in no more than 80°/ 55% percent humidity.	

Q) SALE & DISPOSAL



Important: Read Section REFRIGERATION WARNING INSTALLATION-REPAIR-DECOMMISSIONING of this manual starting on page 9.

All refrigeration and electrical work shall be performed by certified technicians.

Owner Responsibility

If you sell or give away your Federal Industries case you must make sure that all safety labels and the Installation-Service Manual are included with it. If you need replacement labels or manuals, Federal Industries will provide them free of charge. Contact the customer service department at Federal Industries at (800) 356-4206.

The customer service department at Federal Industries should be contacted at the time of sale or disposal of your case so records may be kept of its new location.

If you sell or give away your Federal Industries case and you evacuate the refrigerant charge before shipment. Federal Industries recommends that the charge be evacuated into a recovery system to prevent the possibility of HFC's from being released into the atmosphere.

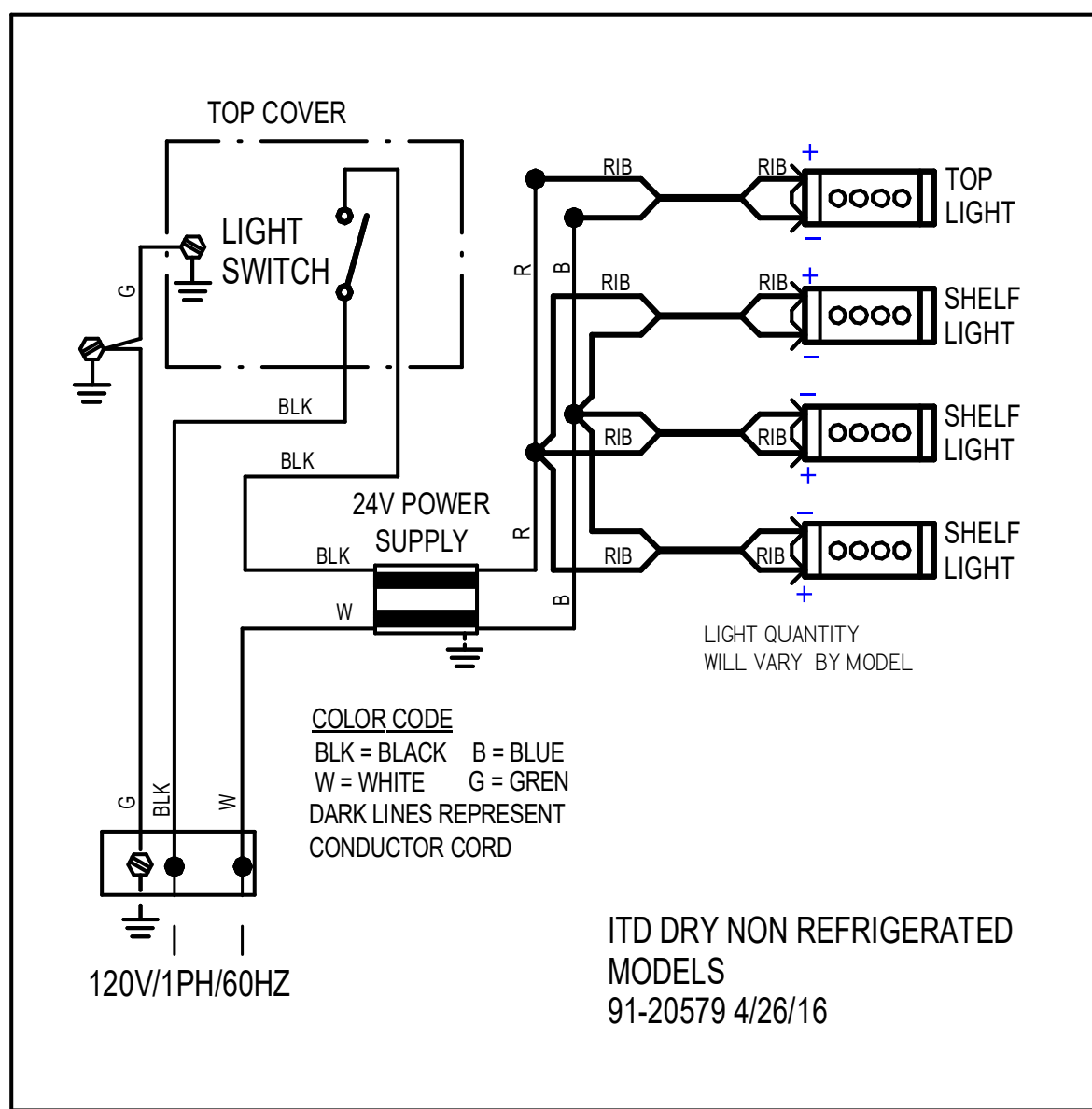
R) MAIN WIRING DIAGRAMS



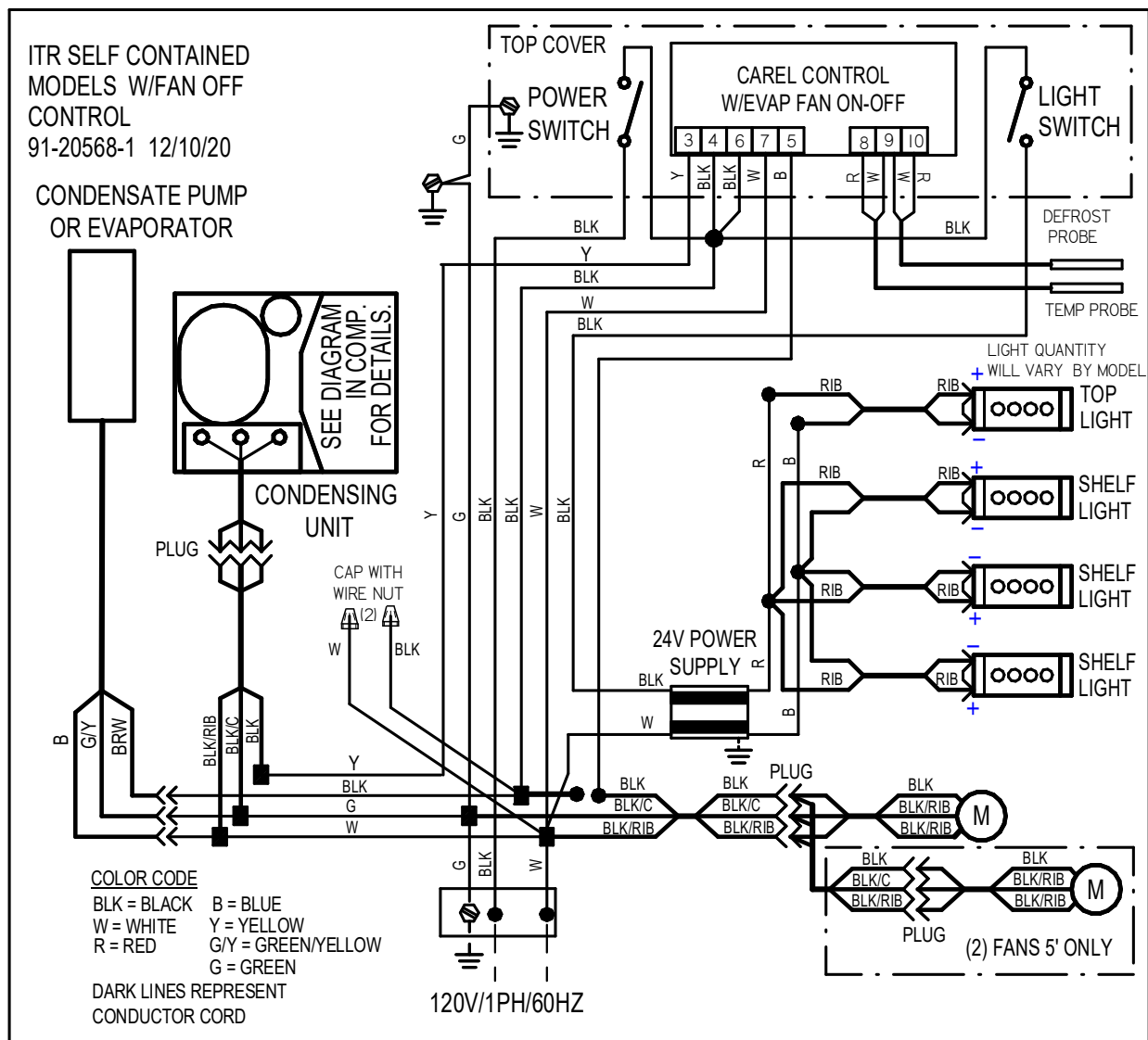
IMPORTANT

Date on diagrams shown here are the effective dates. Units built on or after the date shown are wired per the diagram. Units built prior to the date shown may differ. Refer to wiring diagram located inside the unit for most accurate diagram for your unit.

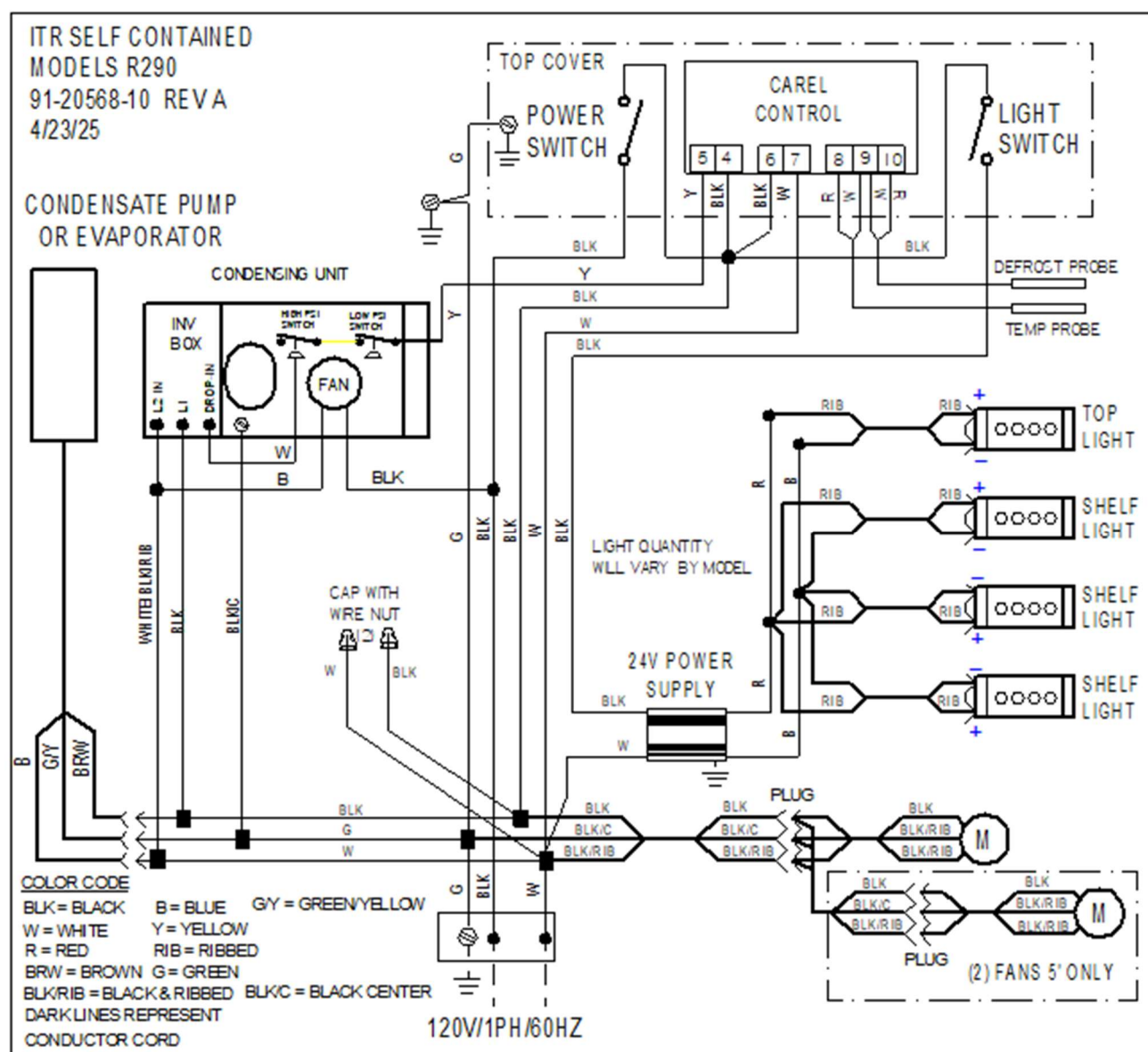
Non-Refrigerated



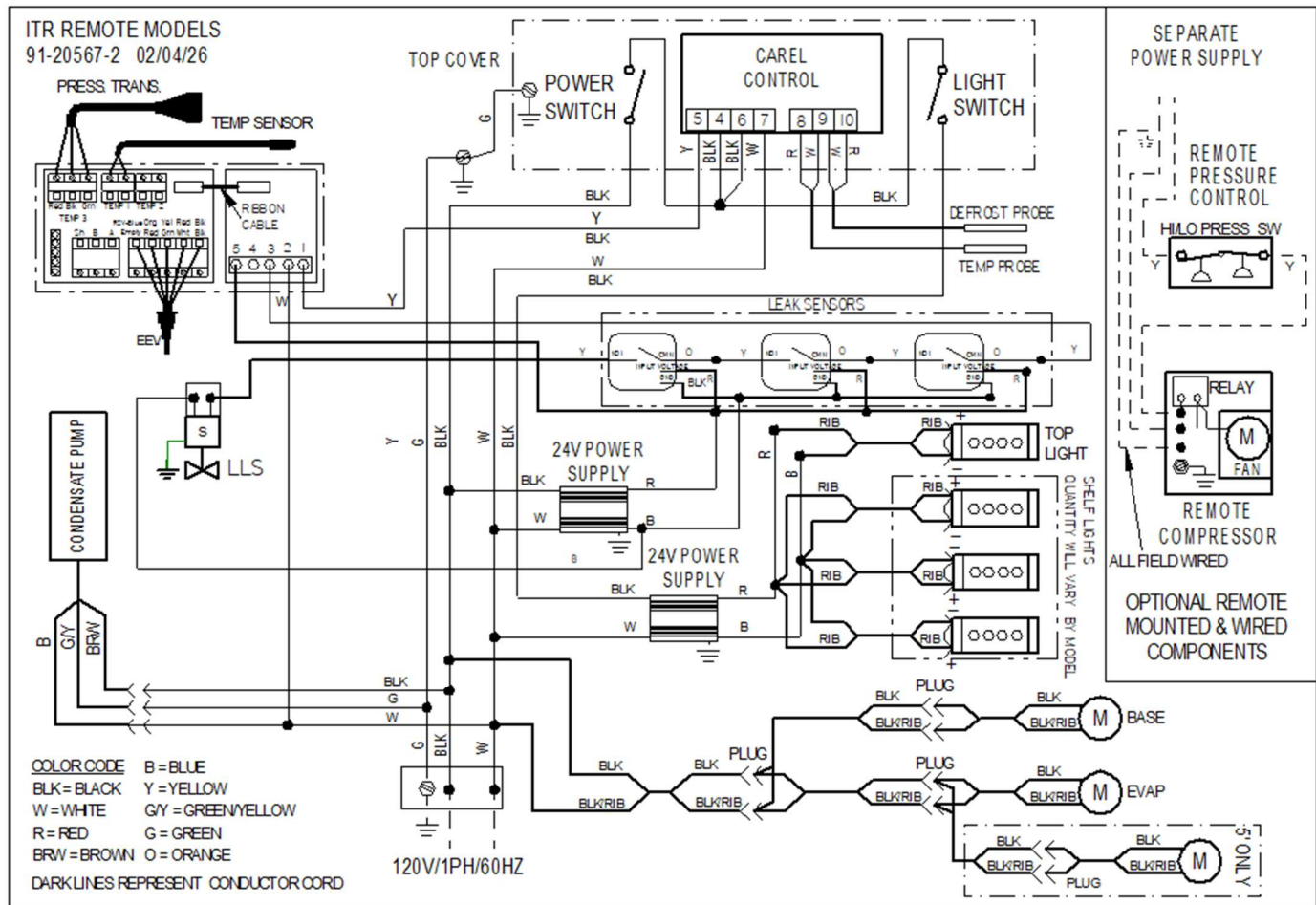
Fan Control Option, Refrigerated Self Contained (not available ITRSS models)



All Refrigerated Self Contained



All Refrigerated Remote



S) REPLACEMENT PARTS

2 REF. E3788 EXCEL FILE

Electrical Components

MODELS	LIGHT SWITCH	POWER SWITCH	LIGHT POWER SUPPLY	LIGHT 24V LED STRIP	SHELF LIGHT CORD	SC MAIN WIRING DIAGRAM	REMOTE MAIN WIRING DIAGRAM	DRY MAIN WIRING DIAGRAM	EEV CONTROL (SS & REMOTE ONLY)	EEV TEMP CONTROL (SS ONLY)	EEV PRESSURE (SS ONLY)
ITD36 ITD48,ITD60	4I-II066	4I-II066	39-20555	42-20870-29C35	43-20475			9I-20579			
ITD48	4I-II066	4I-II066	39-20555	42-20870-40C35	43-20475			9I-20579			
ITD60	4I-II066	4I-II066	39-20555	42-20870-51C35	43-20475			9I-20579			
ITDSS36	4I-II066	4I-II066	39-20555	42-20870-29C35	43-20475			9I-20579			
ITDSS48	4I-II066	4I-II066	39-20555	42-20870-40C35	43-20475			9I-20579			
ITDSS60	4I-II066	4I-II066	39-20555	42-20870-51C35	43-20475			9I-20579			
ITDSS36F	4I-II066	4I-II066	39-20555	42-20870-29C35	43-20475						
ITDSS48F	4I-II066	4I-II066	39-20555	42-20870-40C35	43-20475						
ITDSS60F	4I-II066	4I-II066	39-20555	42-20870-51C35	43-20475						
ITR36 &ITRSS36	4I-II066	4I-II066	39-20555	42-20870-29C35	43-20475	9I-20568	N/A		32-21223	32-21224	32-21225
ITR48 &ITRSS48	4I-II066	4I-II066	39-20555	42-20870-40C35	43-20475	9I-20568	9I-20567-2		32-21223	32-21224	32-21225
ITR60	4I-II066	4I-II066	39-20555	42-20870-51C35	43-20475	9I-20568	9I-20567-2		32-21223	32-21224	32-21225
ITRSS60	4I-II066	4I-I8186	39-20555	42-20870-51C35	43-20475	E384I	9I-20567-2		32-21223	32-21224	32-21225

Refrigeration Components

MODELS	CONDENSING UNIT (SC) After I/22	EVAPORATOR COIL	EXPANSION VALVE	EVAPORATOR FAN MOTOR	FILTER DRIER	ELECTRONIC CONTROL	TEMP. PROBE	CONDENSATE PAN ASSY	ELECTRONIC EXPANSION VALVE	OPT. EVAP FAN ON/OFF ELECTRONIC CONTROL	OPT. CONDO PUMP 120V
ITR36	30-21754	33-17315-21	32-21751	41-21237-11	32-12626	32-19864-14	32-19094	40-20420	32-21228	32-21382-14	47-15686
ITR48	30-21754	33-17315-22	32-21751	41-21237-16	32-12626	32-19864-14	32-19094	40-20420	32-21228	32-21382-14	47-15686
ITR60	30-21754	33-17315-23	32-21751	41-21237-12	32-12626	32-19864-14	32-19094	40-20420	32-21228	32-21382-14	47-15686
ITRSS36	30-21754	33-17315-21	32-21751	41-21237-11	32-12626	32-19864-15	32-19094	SA5202-1	32-21228	-	47-15686
ITRSS48	30-21754	33-17315-22	32-21751	41-21237-16	32-12626	32-19864-15	32-19094	SA5202-1	32-21228	-	47-15686
ITRSS60	30-21754	33-17315-23	32-21750	41-21237-12	32-12626	32-19865-15	32-19094	SA5202-2	32-21228	-	47-15686
REMOTE MODELS	EVAPORATOR COIL	EVAPORATOR FAN MOTOR	ELECTRONIC CONTROL	ELECTRONIC EXPANSION VALVE	TEMP. PROBE	CONDO PUMP 120V	REMOTE BASE FAN	REFRIG SOLENOID	OPT. CONDENSATE PAN ASSY	LEAK DETECTOR	
ITR48R	33-17315-32	41-21237-16	32-19864-14	32-21225	32-19094	47-15686	41-21237-20	32-21915-3 & 32-21915-C24	40-20420	32-21917	
ITR60R	33-17315-33	41-21237-12	32-19864-14	32-21225	32-19094	47-15686	41-21237-20		40-20420	32-21917	

Glass Components

MODELS	FRONT GLASS / PLASTIC ON SS	TOP GLASS	END GLASS CLEAR. L.H. SS TRIM.	END GLASS CLEAR. R.H. SS TRIM	END GLASS REFL. L.H. SS TRIM	END GLASS REFL. R.H. SS TRIM	FRONT GLASS MAGNET TOP	FRONT GLASS MAGNET SIDE
ITD3626	5I-20598-4	5I-20599-4	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R	64-20476-1	64-20476-5
ITD4826	5I-20598-5	5I-20599-4	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R	64-20476-2	64-20476-5
ITD6026	5I-20598-6	5I-20599-4	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R	64-20476-3	64-20476-5
ITD3634	5I-20598-1	5I-20599-1	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R	64-20476-1	64-20476-4
ITD4834	5I-20598-2	5I-20599-2	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R	64-20476-2	64-20476-4
ITD6034	5I-20598-3	5I-20599-3	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R	64-20476-3	64-20476-4
ITDSS3626		5I-20599-1	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R		
ITDSS4826		5I-20599-2	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R		
ITDSS6026		5I-20599-3	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R		
ITDSS3634		5I-20599-1	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R		
ITDSS4834		5I-20599-2	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R		

MODELS	FRONT GLASS / PLASTIC ON SS	TOP GLASS	END GLASS CLEAR. L.H. SS TRIM.	END GLASS CLEAR. R.H. SS TRIM	END GLASS REFL. L.H. SS TRIM	END GLASS REFL. R.H. SS TRIM	FRONT GLASS MAGNET TOP	FRONT GLASS MAGNET SIDE
ITDSS6034		5I-20599-3	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R		
ITDSS3626	I5-20635-I		SA583I-IL	SA583I-IR	SA583I-3L	SA583I-3R		
ITDSS4826	I5-20635-2		SA583I-IL	SA583I-IR	SA583I-3L	SA583I-3R		
ITDSS6026	I5-20635-3		SA583I-IL	SA583I-IR	SA583I-3L	SA583I-3R		
ITDSS3634	I5-20635-I		SA583I-L	SA583I-R	SA583I-2L	SA583I-2R		
ITDSS4834	I5-20635-2		SA583I-L	SA583I-R	SA583I-2L	SA583I-2R		
ITDSS6034	I5-20635-3		SA583I-L	SA583I-R	SA583I-2L	SA583I-2R		
ITR3626	50-2047I-4	50-20472-I	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R	64-20476-I	64-20476-5
ITR4826	50-2047I-5	50-20472-2	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R	64-20476-2	64-20476-5
ITR6026	50-2047I-6	50-20472-3	SA5830-IL	SA5830-IR	SA5830-3L	SA5830-3R	64-20476-3	64-20476-5
ITR3634	50-2047I-I	50-20472-I	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R	64-20476-I	64-20476-4
ITR4834	50-2047I-2	50-20472-2	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R	64-20476-2	64-20476-4
ITR6034	50-2047I-3	50-20472-3	SA5830-L	SA5830-R	SA5830-2L	SA5830-2R	64-20476-3	64-20476-4
ITRSS3626	I5-20635-I		SA583I-IL	SA583I-IR	SA583I-3L	SA583I-3R		
ITRSS4826	I5-20635-2		SA583I-IL	SA583I-IR	SA583I-3L	SA583I-3R		
ITRSS6026	I5-20635-3		SA583I-IL	SA583I-IR	SA583I-3L	SA583I-3R		
ITRSS3634	I5-20635-I		SA583I-L	SA583I-R	SA583I-2L	SA583I-2R		
ITRSS4834	I5-20635-2		SA583I-L	SA583I-R	SA583I-2L	SA583I-2R		
ITRSS6034	I5-20635-3		SA583I-L	SA583I-R	SA583I-2L	SA583I-2R		

Rear Doors

MODELS	DOOR LEFT CLEAR	DOOR RIGHT CLEAR	DOOR LEFT REFLECTIVE	DOOR RIGHT REFLECTIVE	MODELS	DOOR OUTER CLEAR	DOOR INNER CLEAR	DOOR OUTER REFLECTIVE	DOOR INNER REFLECTIVE	DOOR IN SIDE OUTER IJI	DOOR IN SIDE INNER IRI
IT 3626	53-20467-4	53-20468-4	53-20467-4A	53-20468-4A	ITRSS 3626	53-20698-4	53-20699-4	53-20698-4A	53-20699-4A	SA5759-4	SA5760-4
IT 4826	53-20467-5	53-20468-5	53-20467-5A	53-20468-5A	ITRSS 4826	53-20698-5	53-20699-5	53-20698-5A	53-20699-5A	SA5759-5	SA5760-5
IT 6026	53-20467-6	53-20468-6	53-20467-6A	53-20468-6A	ITRSS 6026	53-20698-6	53-20699-6	53-20698-6A	53-20699-6A	SA5759-6	SA5760-6
IT 3634	53-20467-I	53-20468-I	53-20467-IA	53-20468-IA	ITRSS 3634	53-20698-I	53-20699-I	53-20698-IA	53-20699-IA	SA5759-I	SA5760-I
IT 4834	53-20467-2	53-20468-2	53-20467-2A	53-20468-2A	ITRSS 4834	53-20698-2	53-20699-2	53-20698-2A	53-20699-2A	SA5759-2	SA5760-2
IT 6034	53-20467-3	53-20468-3	53-20467-3A	53-20468-3A	ITRSS 6034	53-20698-3	53-20699-3	53-20698-3A	53-20699-3A	SA5759-3	SA5760-3

Shelf Components (After 05/01/2025)

MODELS	GLASS SHELF 11"	GLASS SHELF 14"	GLASS SHELF 17"	SHELF SUPPORT	SHELF BRACKET 9"	SHELF BRACKET 12"	SHELF BRACKET 15"	SHELF SUPORT (NO LIGHT)
IT 3626	-	52-20473-2	52-20473-3	M20442-I	-	67-20621-2L/IR	67-20621-3L/IR	M20379-I
IT 4826	-	52-20473-5	52-20473-6	M20442-I	-	67-20621-2L/IR	67-20621-3L/IR	M20379-2
IT 6026	-	52-20473-8	52-20473-9	M20442-I	-	67-20621-2L/IR	67-20621-3L/IR	M20379-3
IT 3634	52-20473-I	52-20473-2	52-20473-3	M20442	67-20621-IL/IR	67-20621-2L/IR	67-20621-3L/IR	M20379-I
IT 4834	52-20473-4	52-20473-5	52-20473-6	M20442	67-20621-IL/IR	67-20621-2L/IR	67-20621-3L/IR	M20379-2
IT 6034	52-20473-7	52-20473-8	52-20473-9	M20442	67-20621-IL/IR	67-20621-2L/IR	67-20621-3L/IR	M20379-3

Shelf Components (All R290 & After 05/01/2025 On All Other Cases)

MODELS	GLASS SHELF 11"	GLASS SHELF 14"	GLASS SHELF 17"	SHELF SUPPORT	SHELF BRACKET 9"	SHELF BRACKET 12"	SHELF BRACKET 15"	SHELF SUPORT (NO LIGHT)
IT 3626	-	52-20473-2	52-20473-3	M22240-I	-	67-21865-2L/IR	67-21865-3L/IR	M20379-I
IT 4826	-	52-20473-5	52-20473-6	M22240-I	-	67-21865-2L/IR	67-21865-3L/IR	M20379-2
IT 6026	-	52-20473-8	52-20473-9	M22240-I	-	67-21865-2L/IR	67-21865-3L/IR	M20379-3
IT 3634	52-20473-I	52-20473-2	52-20473-3	M22240	67-21865-IL/IR	67-21865-2L/IR	67-21865-3L/IR	M20379-I
IT 4834	52-20473-4	52-20473-5	52-20473-6	M22240	67-21865-IL/IR	67-21865-2L/IR	67-21865-3L/IR	M20379-2
IT 6034	52-20473-7	52-20473-8	52-20473-9	M22240	67-21865-IL/IR	67-21865-2L/IR	67-21865-3L/IR	M20379-3

Front Doors (ITDSS Only)

MODELS	DOOR (2)
ITDSS 3626	SA5959-I
ITDSS 4826	SA5959-3
ITDSS 6026	SA5959-5
ITDSS 3634	SA5959-2
ITDSS 4834	SA5959-4
ITDSS 6034	SA5959-6

California Residents Only.

WARNING

This product can expose you to chemicals including chromium which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

REV	CHANGE RECORD	APP'D	DATE	ECN#
0	RELEASED	LPR	2/17/25	3930
A	NEW SHELF BRACKETS & STANDARDS	SES	3/3/25	3945
B	UPDATED WIRING DIAGRAM 91-20568-10	LPR	4/23/25	3930
C	UPDATE FOR R454C REMOTE CHANGE. CLEANED FORMATTING	TAC	02/27/26	3988