



# INSTALLATION MANUAL

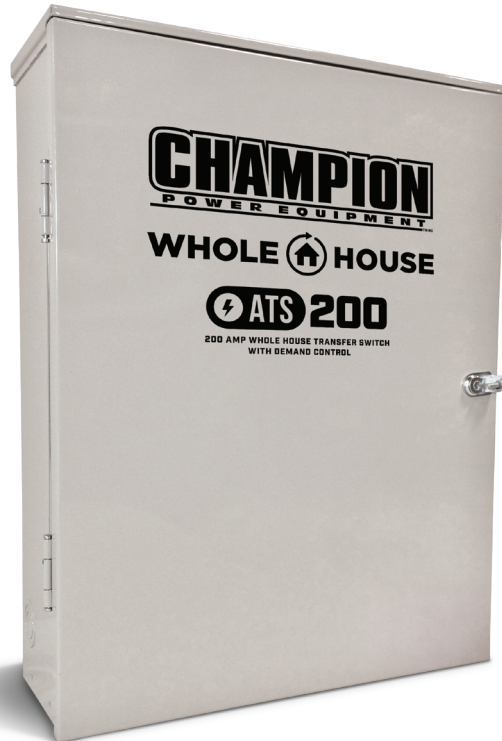
MODEL #101380

RELIANCE CONTROLS ARM SERIES  
AUTOMATIC TRANSFER SWITCH



REGISTER YOUR PRODUCT ONLINE

at [championpowerequipment.com](http://championpowerequipment.com)



  1-877-338-0999

or visit [championpowerequipment.com](http://championpowerequipment.com)

**READ AND SAVE THIS MANUAL.** This manual contains important safety precautions which should be read and understood before operating the product. Failure to do so could result in serious injury. This manual should remain with the product.  
Specifications, descriptions and illustrations in this manual are as accurate as known at the time of publication, but are subject to change without notice.

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## INTRODUCTION

Congratulations on your purchase of a Champion Power Equipment (CPE) product.

When contacting CPE about parts and/or service, you will need to supply the complete model and serial numbers of your product. Transcribe the information found on your product's nameplate label to the table below

<b>CPE TECHNICAL SUPPORT TEAM</b>
1-877-338-0999
<b>MODEL NUMBER</b>
101380
<b>SERIAL NUMBER</b>
<b>DATE OF PURCHASE</b>
<b>PURCHASE LOCATION</b>

## SAFETY DEFINITIONS

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols, and their explanations, deserve your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

### **DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING**

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

### **CAUTION**

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### **NOTICE**




NOTICE indicates information considered important, but not hazard-related (e.g., messages relating to property damage).

### **WARNING**

Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**Safety Symbols**

Some of the following symbols may be used on this product. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to more safely operate the product.

SYMBOL	MEANING
	<p><b>Read Installation Manual.</b> To reduce the risk of injury, user must read and understand installation manual before using this product.</p>
	<p><b>Ground.</b> Consult with local electrician to determine grounding requirements before operation.</p>
	<p><b>Electric Shock.</b> Improper connections can create an electrocution hazard.</p>

**Safety Hangtag**

These labels warn you of potential hazards that can cause serious injury. Read them carefully.

If a label comes off or becomes hard to read, contact Technical Support Team for possible replacement.

HANGTAG	DESCRIPTION	PART NUMBER
<p>1</p> 	<p>Alternate Power Source</p>	<p>1681-T-OP (2 per unit) Loose in IM bag</p>

## SAFETY INSTRUCTIONS

### Instructions for the Reliance Controls ARM Series Automatic Transfer Switch

THE RELIANCE CONTROLS ARM SERIES AUTOMATIC TRANSFER SWITCH (ATS) IS NOT FOR “DO-IT-YOURSELF” INSTALLATION. It must be installed by a qualified electrician thoroughly familiar with all applicable electrical and building codes.

The Reliance Controls ARM Series is an automatic transfer switch purpose-designed to provide a safe and simple method of powering a dwelling from a permanently installed backup AC power source. The electrical-over-mechanical transfer switching and interlocking system prevents accidental feedback of backup power onto utility lines.

This manual has been prepared for familiarizing servicing dealer/installer with the design, application, installation and servicing of the equipment.

Read the manual carefully and comply with all instructions.

This manual or a copy of this manual should remain with the switch. Every effort has been taken to make sure that the contents of this manual are accurate and current.

The manufacturer reserves the right to change, alter or otherwise improve this literature and the product at any time without prior notice and without any obligation or liability whatsoever.

The manufacturer cannot anticipate every possible circumstance that might involve a hazard.

The warnings in this manual, tags and decals affixed to the unit are, therefore, not all-inclusive. If using a procedure, work method or operating technique the manufacturer does not specifically recommend follow all codes to ensure safety for personnel.

Many accidents are caused by failing to follow simple and fundamental rules, codes and precautions. Before installing, operating or servicing this equipment, read the SAFETY RULES carefully.

The publications that cover the safe use of ATS and installation are the following NFPA 70, NFPA 70E, UL 1008 and UL 67. It is important to refer to the latest version of any standard/code to ensure correct and current information. All installations must comply with local municipal, state and national codes.

#### Before Installation

#### **⚠ WARNING**

Per OSHA 3120 Publication; “lockout/tagout” refers to specific practices and procedures to safeguard individuals from the unexpected energization or startup of machinery and equipment, or the release of hazardous energy during installation, service or maintenance activities.

#### **⚠ WARNING**

Be certain that the power from the utility is turned off and all backup sources are locked out before starting this procedure. Failure to do so could result in serious injury or death. Remember, automatic start generators will start upon loss of utility mains power unless locked in the “off” position. Consult the generator operator manual section to locate the ATS CONTROL and ENGINE CONTROL modules to make sure both switches are in the OFF position.

#### **⚠ CAUTION**

Consult with your Local municipal, State and National electrical codes for proper mandatory wiring methods.

Carefully unpack the ATS. Inspect closely for any damage that might have occurred during shipment. Check that all packing material is completely removed from the ATS prior to installation. Handle ATS carefully when installing. Do not drop. Protect the ATS against impacts at all times and against construction grit and metal chips. Never install an ATS that is damaged.

TOOLS REQUIRED	NOT INCLUDED
5/16 in. Hex Wrench	Mounting Hardware
1/4 in. Hex Wrench	Communication Wire
5/32 in. Flat Screwdriver	Line Voltage Wire
Wire strippers	Conduit
Twist on wire connectors	Fittings

## ATS SELECT SWITCH



This unit may be wired to several models of ATS (automatic transfer switch). The selector switch is located onboard the generator near the ATS signal wire connector. Select position “1” if you are connecting to an ATS50 or ATS100 and select position “2” if you are connecting to a service entry demand control ATS (up to 200A).

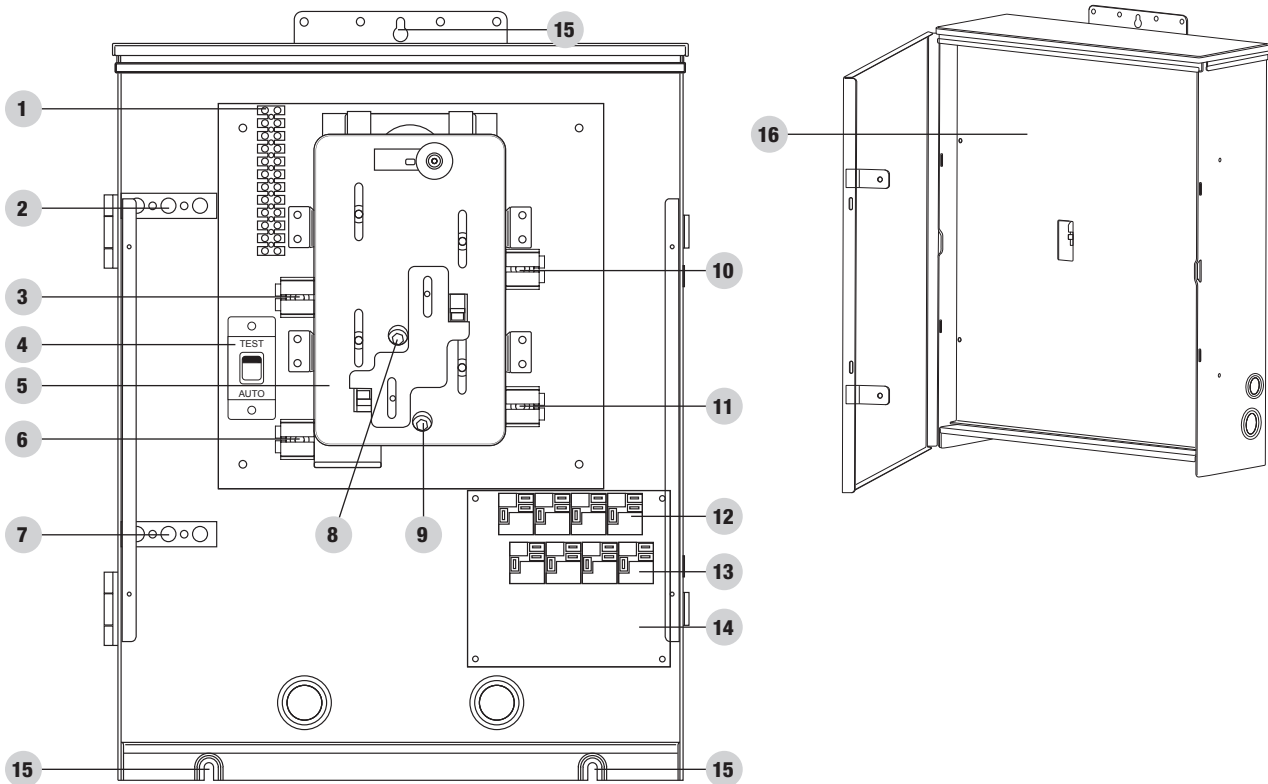
### **⚠ CAUTION**

Failure to set this switch to the matching ATS installed can result in damage to both ATS and HSB.

## CONTROLS AND FEATURES

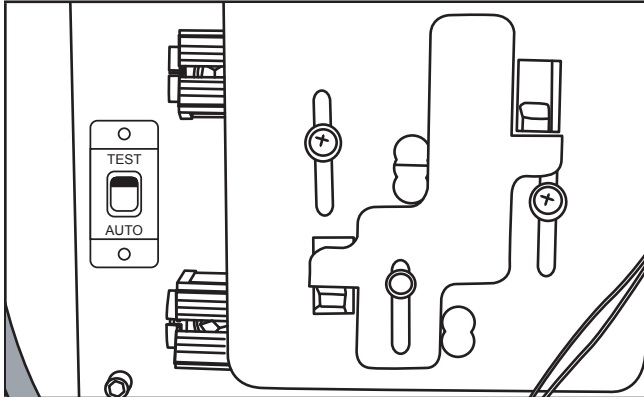
Read this installation manual before installing your transfer switch. Familiarize yourself with the location and function of the controls and features. Save this manual for future reference.

### ARM Series Automatic Transfer Switch

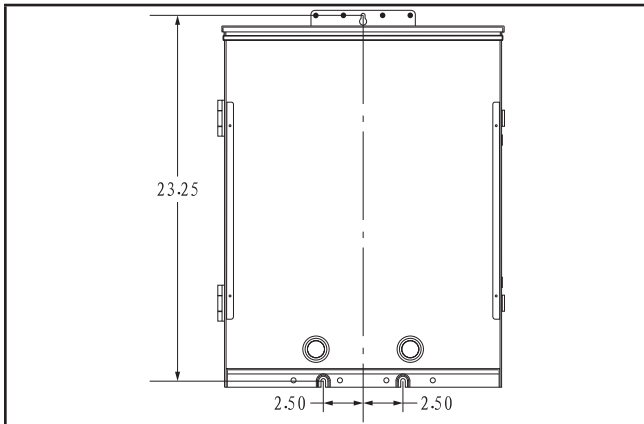


- |                               |                                      |
|-------------------------------|--------------------------------------|
| 1. 12-position Terminal Block | 12. Outer row of relays              |
| 2. Neutral bar                | 13. Inner row of relays              |
| 3. Utility L1 terminal        | 14. Load Management module (LMM)     |
| 4. Test Switch                | 15. Mounting holes (1 top, 2 bottom) |
| 5. Drive Plate                | 16. Dead Front                       |
| 6. Utility L2 terminal        |                                      |
| 7. Ground bar                 |                                      |
| 8. Load L1 terminal           |                                      |
| 9. Load L2 terminal           |                                      |
| 10. Generator L1 terminal     |                                      |
| 11. Generator L2 terminal     |                                      |

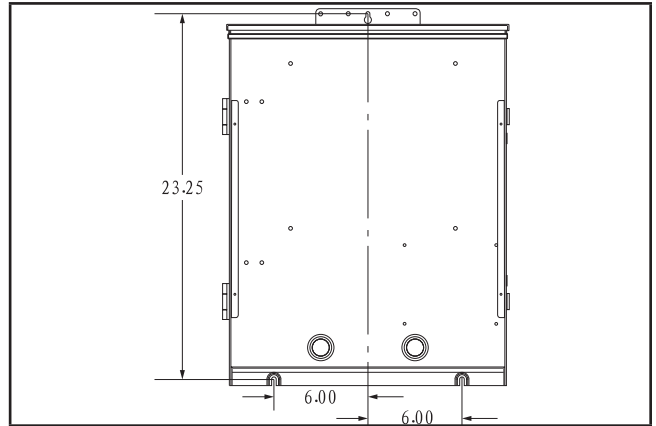
As of January 1, 2017, enhanced UL 67 safety requirements took effect, applying to all panelboards and loadcenters with service equipment applications. To comply, any single service disconnect panelboard or loadcenter must have provisions such that, when the service disconnect is opened, no person in the field servicing the equipment load side can make accidental contact to live circuit parts. Barriers to protect against unintended contact shall be constructed in such a way that they are easily installable and removable without contacting or damaging bare or insulated live parts. The barrier could be installed on the ARM, panelboard or loadcenter.



We elect to use different style mounting cabinets at times. Below gives you dimensions for mounting either style you may receive. Style 1 may require hub covers for top openings, use Siemens type HS hub cover or similar and hub hardware ECHSXXX or similar.



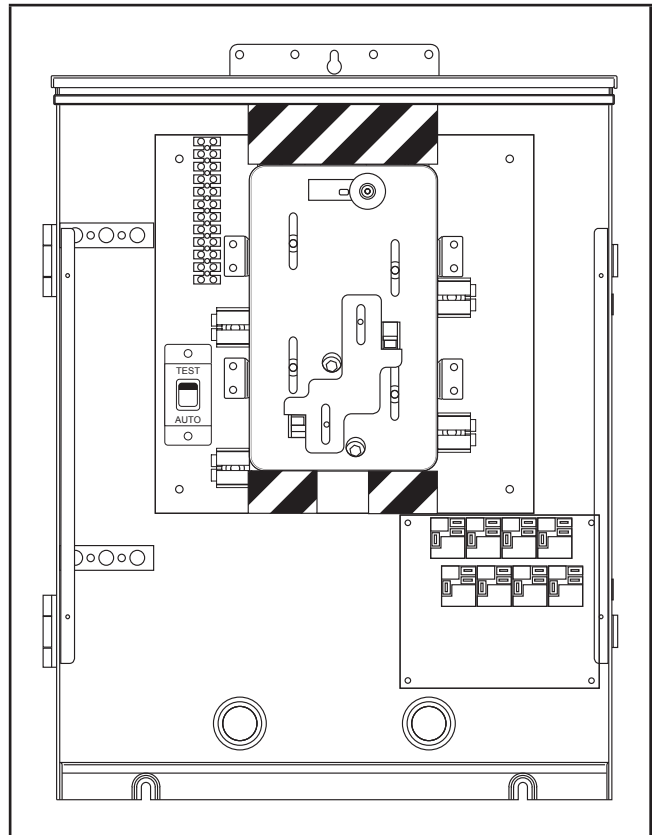
Style 1 – use 1/4 in. hardware (not included)




Style 2 – use 1/4 in. hardware (not included)

**NOTICE**

Do not route wires below or above the drive plate, as this will impede movement of the drive plate

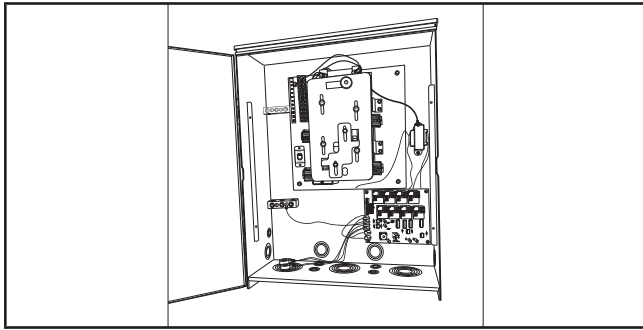


 Do not route wires in the shaded zones.



## ARM Test Switch

### ARM Test Switch Functional Description



The ARM test switch allows the installer or home owner to simulate a utility power outage without requiring the utility company to disconnect power from the home by pulling the meter or by other means.

After installation of the ARM automatic transfer switch, be sure the test switch within the ARM is in the 'AUTO' position prior to installing the deadfront panel.

### Using the Test Switch to Simulate a Utility Power Outage

#### NOTICE

In order to perform a simulated test of a utility power outage:

- There must be utility power present at the ARM ATS.
- The generator must be in automatic mode.
- The overall home standby system must have been verified as fully operational.

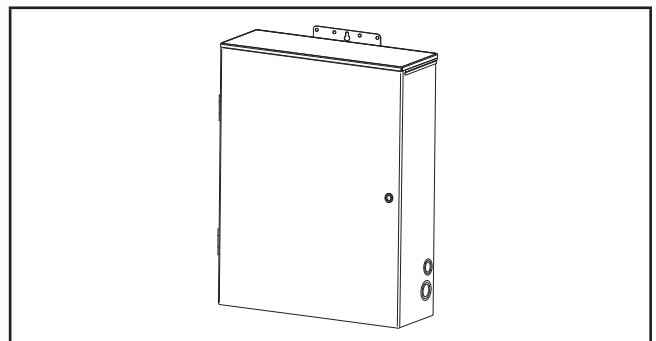
### To simulate a utility power outage and force the ARM to perform a transfer from utility power to generator power

1. Remove the deadfront from the ARM.  
Caution: There are live electrical circuits beneath the deadfront of the ARM.
2. Locate the test switch and place it in the 'TEST' position. Once the switch is placed in the 'TEST' position it must be left in that position until the complete transfer has taken place, which is approximately 30 seconds.
3. Once the switch is placed in the 'TEST' position, the home standby generator will start within approximately 30 seconds. After the generator has run for approximately 30 seconds the generator will command the ARM automatic transfer switch to begin transfer from utility power to generator power. This transfer should be complete within approximately 30 seconds from the time the test switch is placed in the 'TEST' position.
4. The transfer to generator power is now complete.

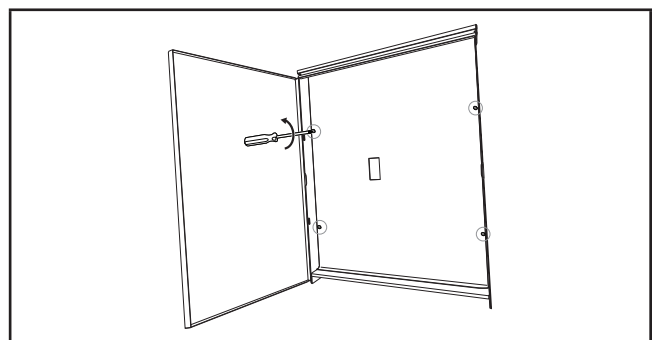
5. Allow the generator to run 5-10 minutes such that it reaches normal operating temperature.
6. To exit the test, place the test switch in the 'AUTO' position.
7. After approximately 30 seconds the generator will command the ARM transfer switch to start a transfer from generator power to utility power.
8. After the transfer is complete, the generator will shut off.
9. Testing of the ARM using the test switch is now complete.
10. Reinstall the deadfront on the ARM.

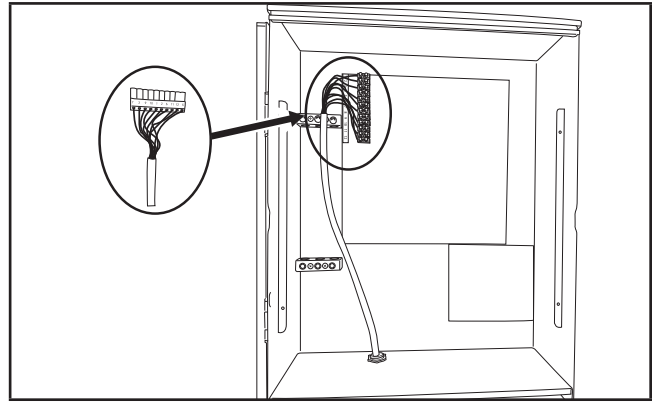
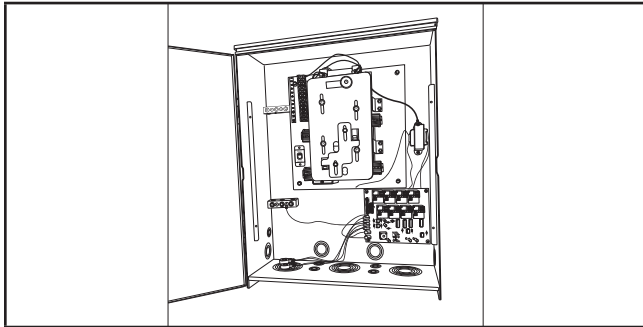
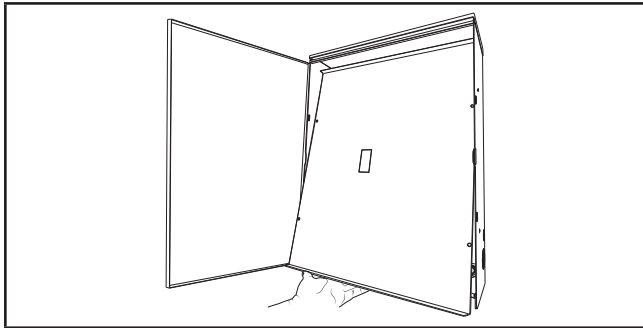
## Installing the ARM Series Automatic Transfer Switch (ATS)

1. The ARM is a service-entrance rated device. It is not acceptable for use as a non-service entrance device (e.g. subpanel). Mount the ARM in a convenient spot. The enclosure is NEMA 3R rated, so it can be installed either indoors or outdoors.



2. Open the door and remove the deadfront by removing the four screws, tilting the bottom of the deadfront outward, and sliding the deadfront outward and downward from under the door latch protrusions.



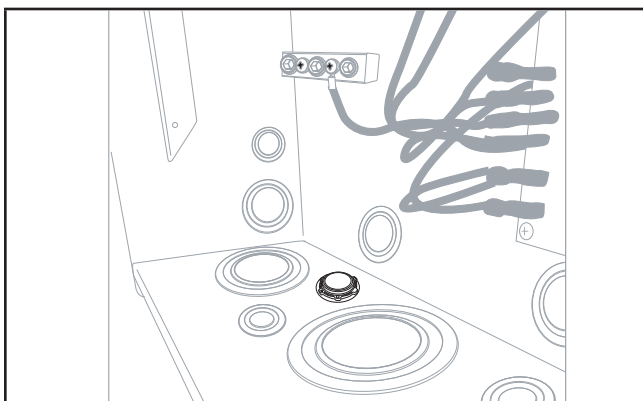
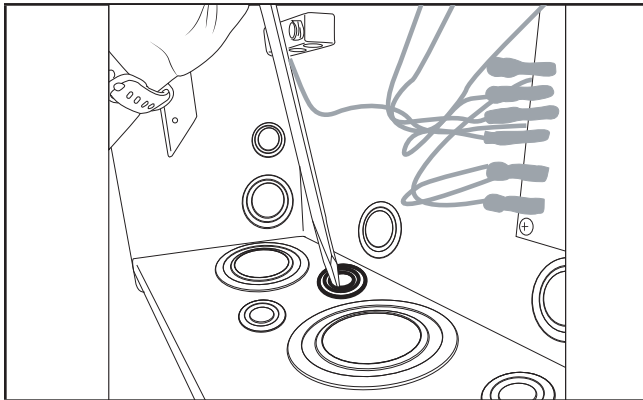


**NOTICE**

- Note that some of the 12-position terminal block positions are deliberately unused.
- Wire color and number should match on both ends between 10-position and 12-position connectors.

**Communication Wiring**

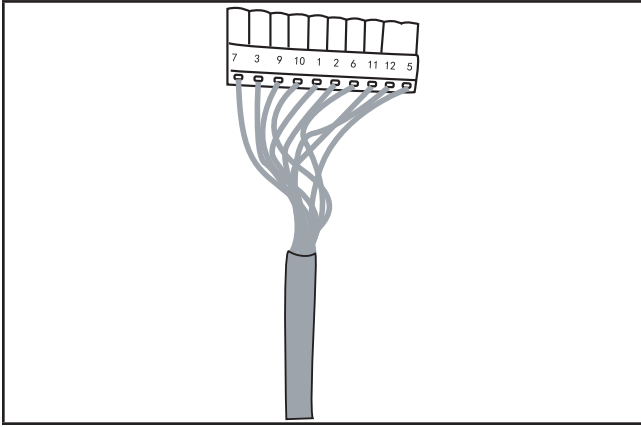
3. Route a multi-conductor cable (min AWG 18 max AWG 12) from the generator to the 12-position Terminal Block in the ARM through a smaller knockout near the middle or another smaller knockout, depending on your installation setup. Strip wires 1/4 inch and connect each wire to the appropriately-numbered terminal. Torque to 28-32 in-oz.



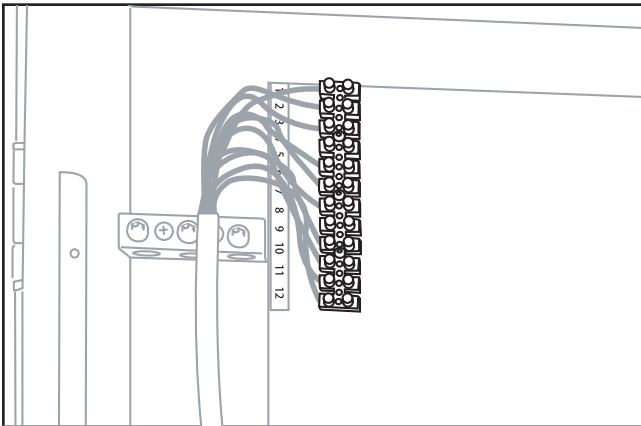
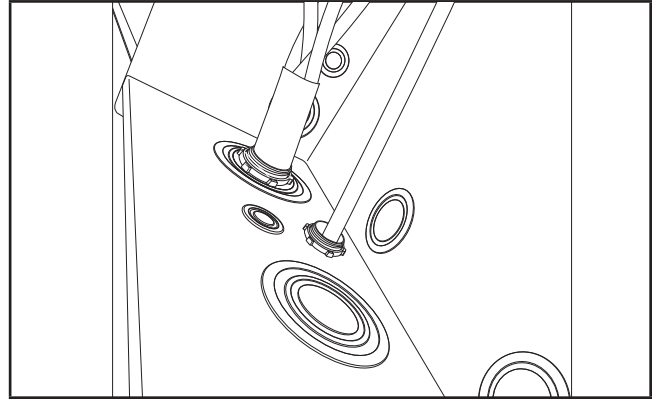
Position	Function	Voltage
1	Switch to generator drive power	120 VAC
2	Switch to utility drive power	120 VAC
3	Switch to – common return	Neutral
4	Unused	
5	Generator position micro-switch	Switch closure
6	Utility position micro-switch	Switch closure
7	Position micro-switch common	Switch closure
8	Unused	
9	Load bus line 1 out	120 VAC
10	Load bus line 2 out	120 VAC
11	Utility line 1 out	120 VAC
12	Utility line 2 out	120 VAC

**NOTICE**

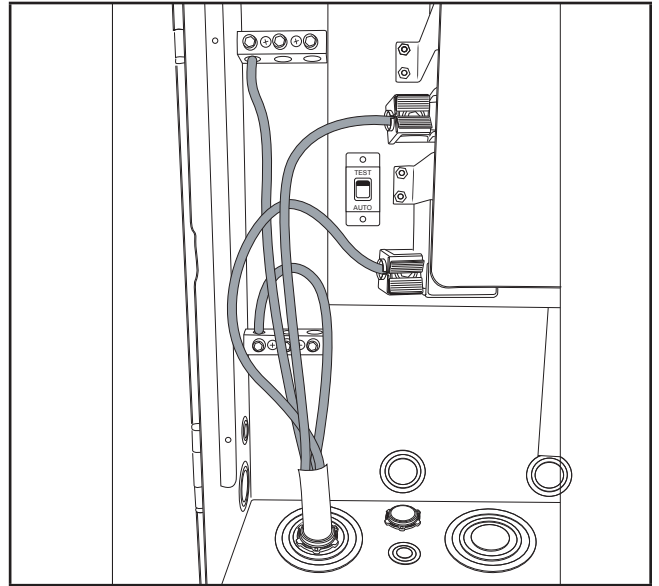
The 10-position connector will connect to your Home Standby. This connector is provided with the Home Standby Generator. Cable is not provided.



10-Position Home Standby Connector (with wire termination)



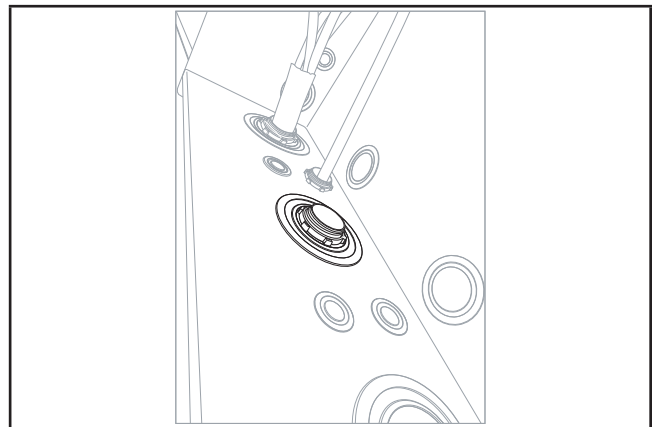
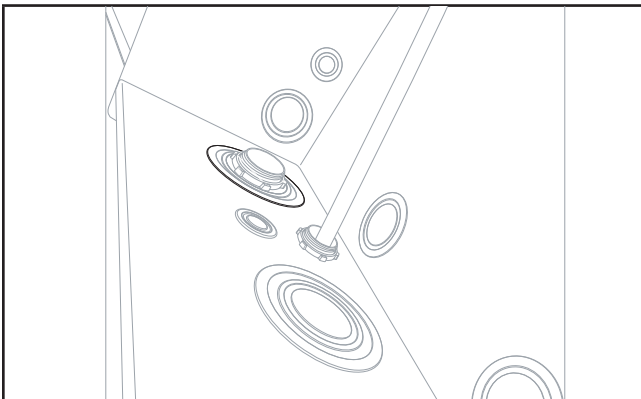
12-Position Terminal Block (with wire termination)

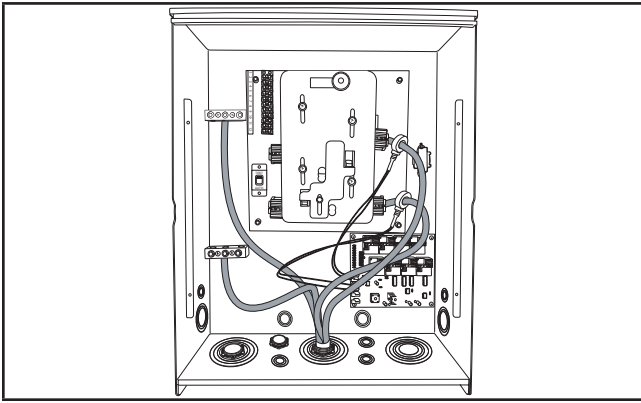


**Line Voltage Wiring**

4. Install minimum 60°C copper or aluminum wires of the appropriate size (min AWG 1 – max AWG 000) from the serving utility electrical meter through a larger knockout on the bottom left or other larger knockout, depending on your installation setup in the ARM. Route and connect L1 and L2 wires to the utility circuit breaker (left side) inside the cabinet. Route and connect the neutral wire to the upper terminal block. Route and connect the ground wire from the grounding rod to the lower terminal block. Torque all line voltage connections to 250 in-lbs.

5. Install minimum 60°C copper or aluminum wires of the appropriate size (see your generator installation manual), from the power output terminals of the generator through a larger knockout in the center or other larger knockout depending on your installation setup in the ARM.

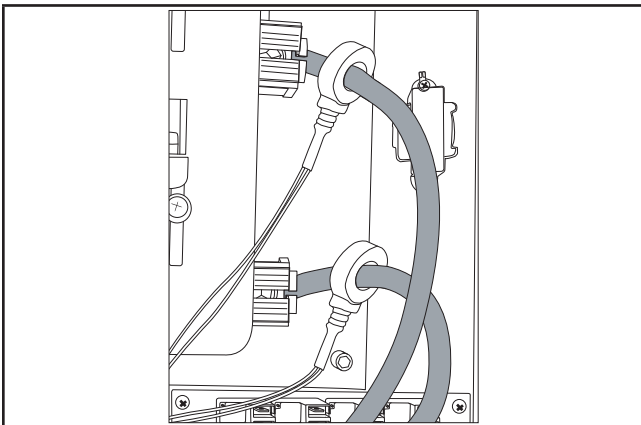




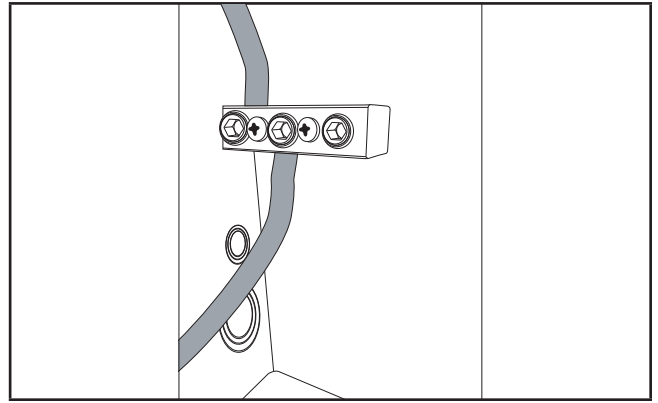
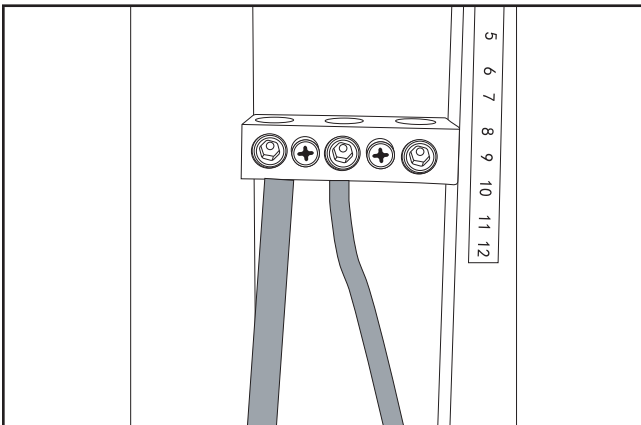
6. If using power management, route and connect L1 and L2 wires through a current transformer (CT) and to the circuit breaker on the generator (right side) inside the cabinet. Make certain that both L1 and L2 each pass through a single CT.

**NOTICE**

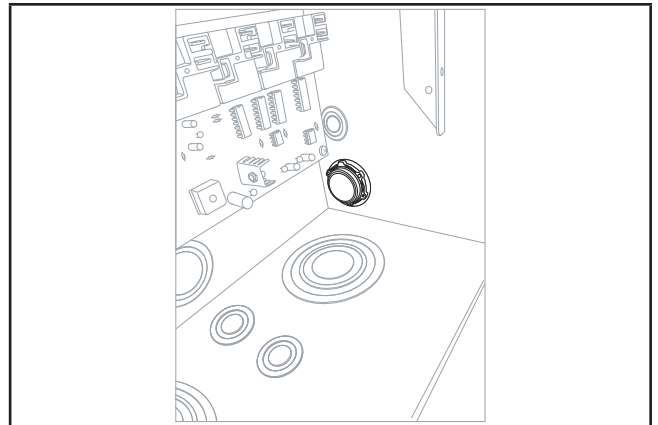
Proper wire termination is required as this breaker is intentionally mounted upside down under the drive plate.



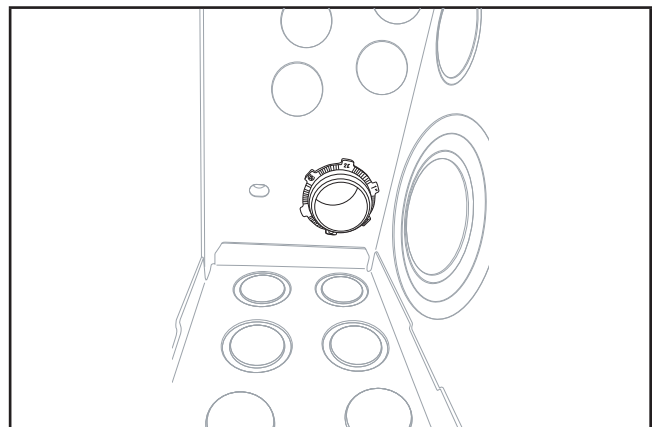
7. Route and connect the neutral wire to the upper terminal block (neutral bar). Route and connect the ground wire to the lower terminal block (ground bar). Torque all line voltage connections to 250 in-lbs.



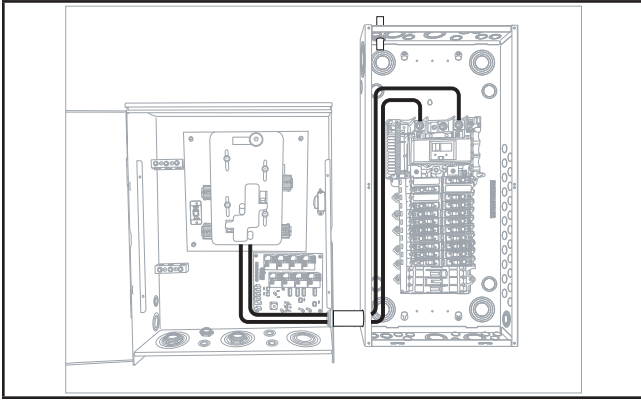
8. Install minimum 60°C copper or aluminum wires of the appropriate size (AWG 1 - AWG 000) from the power output terminals L1 and L2 of the transfer switch through another knockout on the bottom the ARM to the input to the loadcenter (home distribution panel). Torque all line voltage connections to 250 in-lbs.



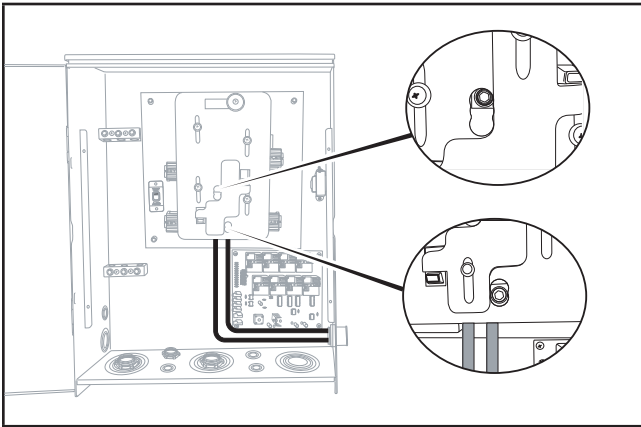
ARM knockout



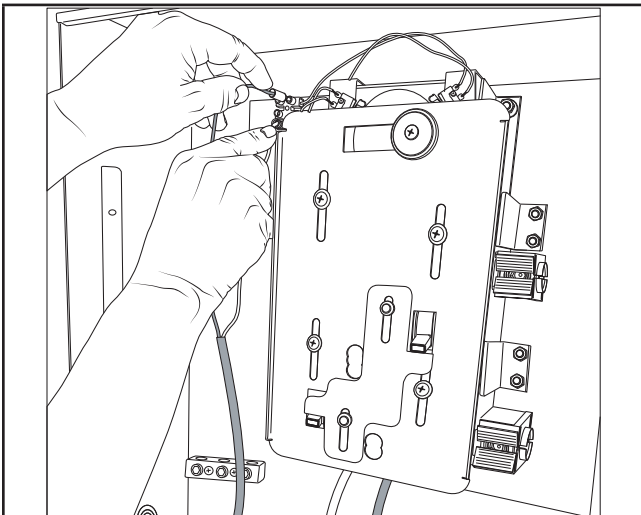
Loadcenter knockout



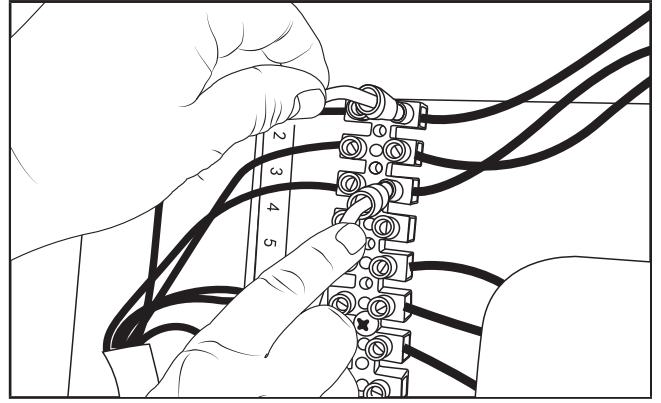
9. Route and connect L1 and L2 wires to Load L1 and L2 Terminal set screws underneath the drive plate. Access to the set screws is through two holes in the drive plate. Torque all line voltage connections to 250 in-lbs.



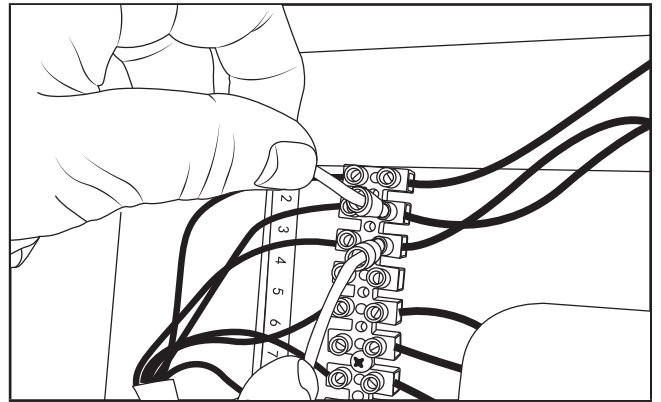
10. If for some reason the holes do not line up properly with the set screw on the power lug, the drive plate can be driven to an acceptable position by connecting a 120 VAC extension cord temporarily to the 12-position Terminal Block on the upper left side of the transfer switch (terminal 1 hot - to - terminal 3 neutral; or terminal 2 hot - to - terminal 3 neutral) (Fig C). The drive plate will automatically stop when it reaches the stopping point.



120 VAC extension cord

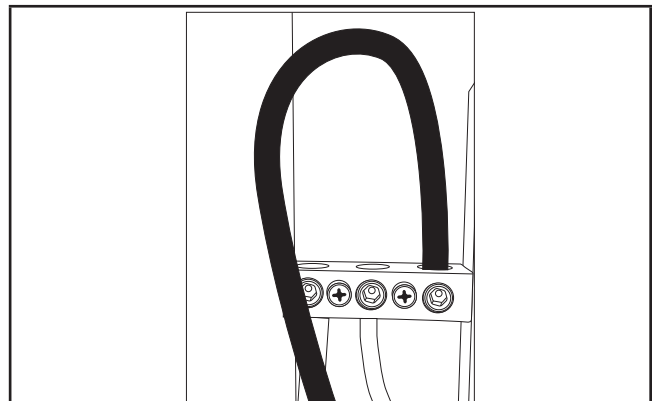


1 hot - to - terminal 3 neutral

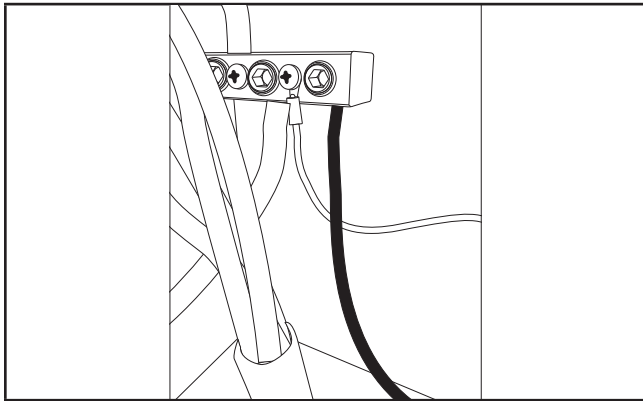


Terminal 2 hot - to - terminal 3 neutral

11. Route and connect a neutral wire to the upper terminal block (neutral bar) from the loadcenter. Route and connect a ground wire to the lower terminal block (ground bar) from the loadcenter. Torque all line voltage connections to 250 in-lbs.



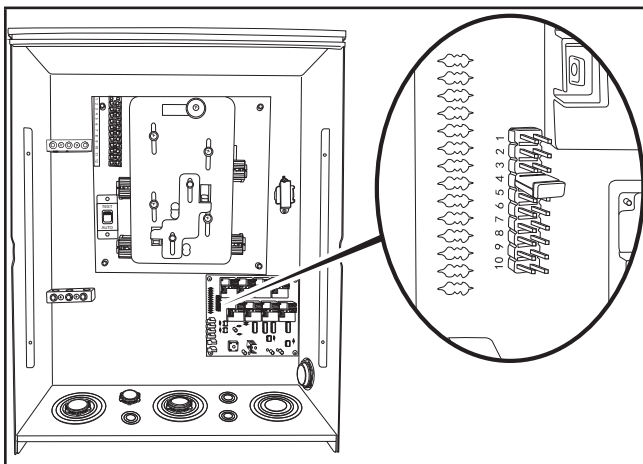
Connect a neutral wire to the upper terminal block (neutral bar) from the load center.



Connect a ground wire to the lower terminal block (ground bar) from the load center.

**Connecting the Load Management Systems**

- 12. Set the jumper in the upper left corner of the Load Management Module (LMM) to the output of the home standby generator, according to the chart below.



1. ....	8500 watts
2. ....	9500 watts
3. ....	11000 watts
4. ....	12500 watts (example shown)
5. ....	14000 watts
6. ....	15500 watts
7. ....	17000 watts
8. ....	18500 watts
9. ....	20000 watts

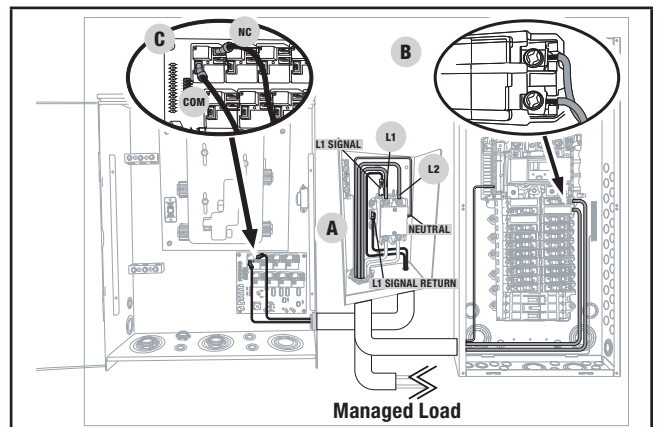
If the installed generator is not one of these wattages shown, set the jumper for the setting closest to, but not larger than, the actual generator watt rating.

**NOTICE**

Select up to eight circuits in the loadcenter for load management. It is the responsibility of the installer to assure that the correct types of circuits are selected for load management, and that the chosen circuits are of sufficient power draw to assure the proper operation of the home standby generator should an overload condition occur. Choose 240V loads like air conditioning or heat pump, etc.

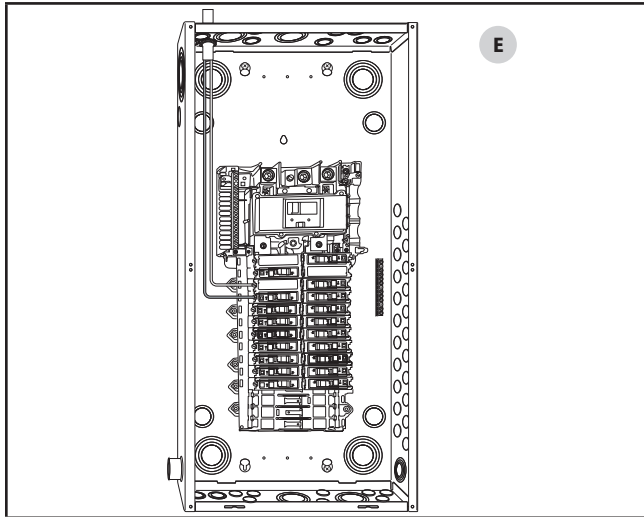
The LMM contains circuitry that monitors the current draw on generator feeder L1 and L2. If at any time, the current draw exceeds that preset by the jumper, the unit will de-energize all eight circuits. Within 5 minutes, the circuitry will re-energize four circuits in the inner row of the LMM. After an additional 4 minutes, the circuitry will re-energize the four circuits in the outer row.

- 13. **For 240V 50A through LCM:** Install LCM (sold separately Item A) in a convenient location between loadcenter (Item B) and the managed load. Disconnect existing wires from Loadcenter circuit breaker of managed load. Route and connect load wire L1 and L2 from the Loadcenter circuit breaker to the LCM using the same gauge wire. Connect outgoing L1 and L2 load line voltage wires to the managed load. Torque all line voltage connections to 250 in-lbs.
- 14. Route and connect LCM contactor coil (L1 signal) wire to the Normally Closed (NC) port on the LMM then route from the COM port back to the contactor coil (L1 signal return) relay on the LCM, using low voltage wire and a ¼" push-on terminal.



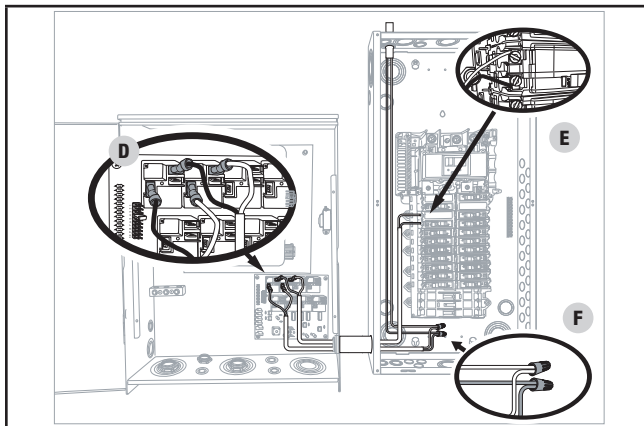
Item A: Load Control Module (LCM)—Sold separately  
 Item B: Loadcenter 240V 50A example  
 Item C: Load Management Module (LMM)

- 15. **For 240V 20A or smaller** - For each circuit, disconnect the load wire from its circuit breaker in the Loadcenter (Item E), and connect it to a wire of the same AWG using twist-on wire connectors. (Item F)



Loadcenter 240V 20A example

16. Route this new wire to the ARM through a smaller knockout depending on your installation setup and connect it to common terminals with L1 to relay 1 and L2 to relay 2 of two adjacent relays on the LMM (Item D) using a 1/4" push-on terminal.
17. Connect another wire of the same AWG to the Normally Closed (NC) terminal on the same LMM relay as well as the adjacent relay in this case relay 1 and 2, also using a 1/4" push-on terminals. Use the adjacent relays in your particular installation if using other relays (Item D)
18. Route that wire back to the loadcenter (Item E) and install it into the circuit breaker from which the original wire was removed. The LMM contains circuitry that monitors the current draw on generator feeder L1 and L2.



Item D: Load Management Module (LMM)  
 Item E: Loadcenter 240V 20A example  
 Item F: Wire Connectors

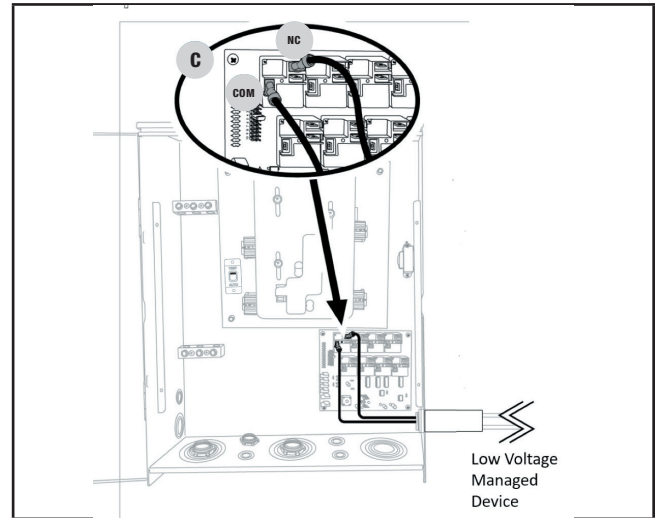
**⚠ DANGER**

Do not make LMM connection to line voltage greater than 120V 20A for each relay.

**For Low Voltage**

For air conditioning or other low voltage controls, route a wire to the ARM through a smaller knockout depending on your

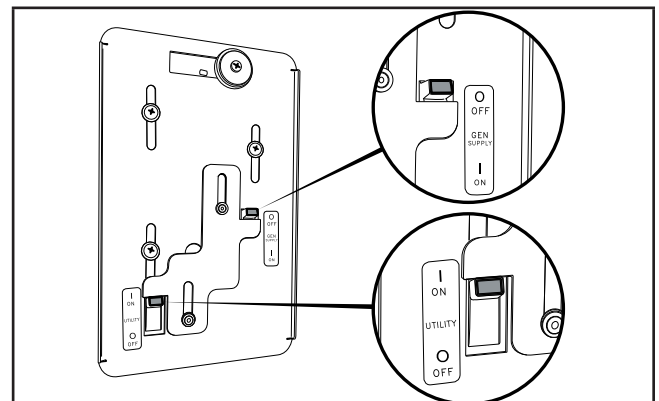
installation setup. Connect the wiring to relay terminals one COM and one Normally Closed (NC) wire terminal on the LMM (Item C) using a 1/4" push-on terminal. Run the wire out of ARM and connect to low voltage managed device.



Item C: Load Management Module (LMM)

**Commissioning the ARM Series**

19. Make certain that the utility breaker (left side) is in the "on" position (handle up), and the generator breaker (right side) is in the "off" position (also handle up).



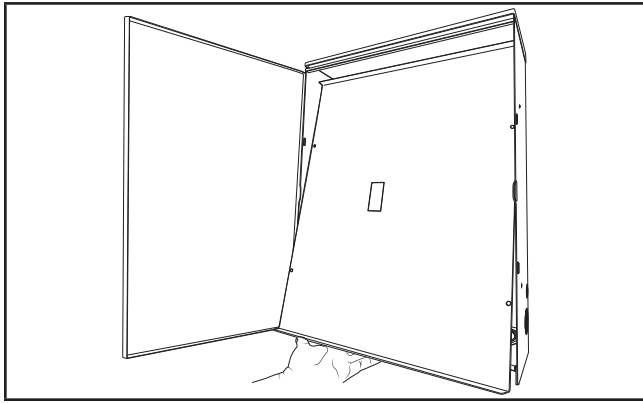
**NOTICE**

The generator breaker is upside down, so the off position is with the handle up.

**NOTICE**

Make certain test switch is in AUTO position prior to installing the deadfront panel

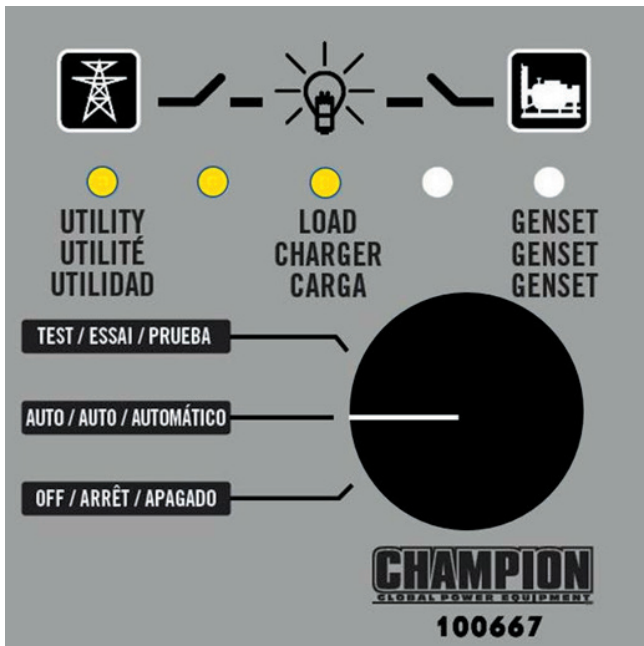
20. Replace the deadfront by sliding it from the bottom into the cabinet underneath the door latch protrusions. Secure it to the deadfront brackets with the four (4) screws removed earlier.



21. Close and latch the door. If the ARM is mounted outdoors, padlock the door closed. Reinstall two (2) thumbscrews in door.
22. Re-enable the utility power.
23. Remove the generator lock-out apparatus and arm the generator.

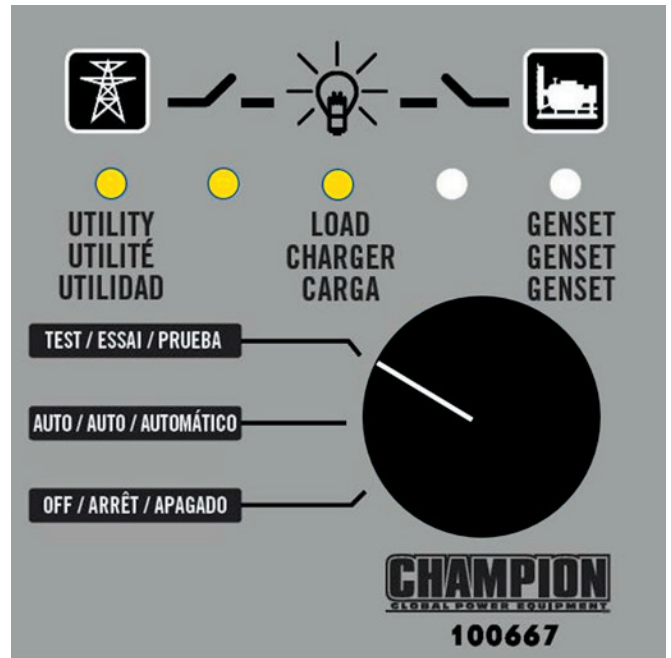
Your ARM Series automatic transfer switch is now fully functional. To test its performance, follow the instructions provided by the generator manufacturer. Test the unit monthly. Service yearly per maintenance instructions.

**CHECKS**



- Engine Controller Module 100666 green light ON for power.
- Engine Controller Module 100666 selector switch set to ATS.
- ATS Control Module 100667 will indicate Utility or GENSET depending on what power is sourced to the home.
- Utility: The 3 LEDs on the left of ATS Module will be luminated when power source is through Utility.
- GENSET: The 3 LEDs on the Right of ATS Module will be luminated when power source is through HSB Generator.

**Move Selector Switch to TEST on ATS Control Module**



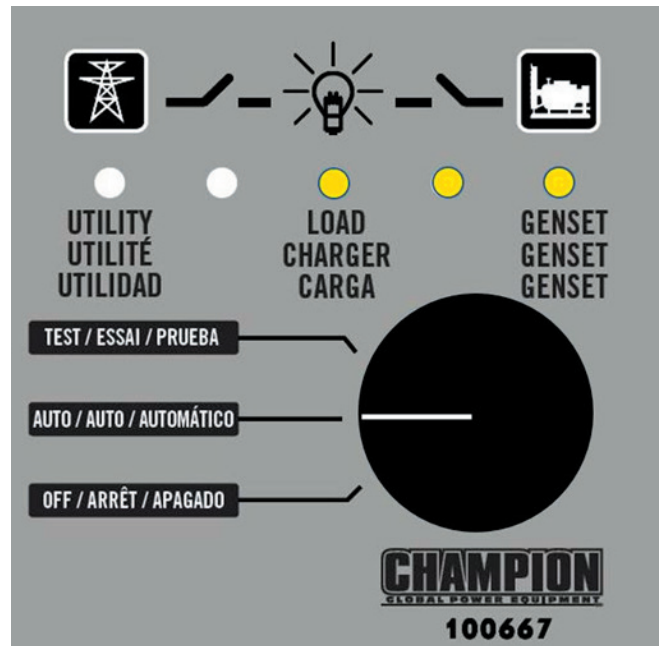
Test – This position allows verification that the HSB power delivery circuit is functional. With the switch in TEST position, the engine will start and the ATS will transfer from:

UTILITY to GENSET.

Safety procedures need to be followed.

Allow HSB to run for 1:30 – 5:00 (minutes)

**Move the ATS selector switch to AUTO**



ATS will cycle to Utility and complete Test.

After transfer to Utility the HSB Generator will cool for one minute and shut off automatically



## ANNUAL MAINTENANCE

The ARM should be maintained yearly.

1. Visually inspect the unit to assure that there are no broken objects or loose wires in the cabinet.
2. Inspect the drive plate. To do so, disable the generator and remove the deadfront. If needed, apply a thin layer of all-purpose lithium stearate automotive grease around all the slotted holes in the drive plate with the exception of the two rectangular holes through which the circuit breaker handles protrude.

## SPECIFICATIONS

### Reliance Controls ARM Series Automatic Transfer Switch

Model Number.....	ARM20208R
Enclosure Style .....	NEMA 3R outdoor
Maximum Amps .....	200
Nominal Volts .....	120/240
Load Management Circuits .....	8

### Technical Specifications

- 22kAIC, no short-time current rating.
- Suitable for use in accordance with the National Electrical Code, NFPA 70.
- Suitable for control of motors, electrical discharge lamps, tungsten filament lamps, and electrical heating equipment, where the sum of the motor full load ampere ratings and the ampere ratings of the other loads does not exceed the ampere rating of the switch, and the tungsten load does not exceed 30% of the switch rating.
- Continuous load not to exceed 80% of switch rating.
- Line voltage wiring: Cu or AL, min 60°C, min AWG 1 – max AWG 000, torque to 250 in-lb.
- Signal or Com Wiring: Cu only, min AWG 22 – max AWG 12, torque to 28-32 in-oz.

## WARRANTY

Each Reliance transfer switch or accessory is guaranteed against mechanical or electrical failure due to manufacturing defects for a period of **24 months** following shipment from the factory. The manufacturer's responsibility during this warranty period is limited to repair or replacement, free of charge, of products proving defective under normal use or service when returned to the factory, transportation charges prepaid. Guarantee is void on products that have been subjected to improper installation, misuse, alteration, abuse or unauthorized repair. The manufacturer makes no warranty with respect to the fitness of any goods for a user's particular application and assumes no responsibility for proper selection and installation of its products. This warranty is in lieu of all other warranties, expressed or implied, and limits the manufacturer's liability for damages to the cost of the product. This warranty gives you specific legal rights, and you may have other rights, which vary from state to state.