OVATION™ Series

Automatic Transfer Switch Systems

Installation, Operating and Maintenance Instructions

For Models:

- ATS1001D, ATS1001R
- ATS2001D, ATS2001R
- ATS2002R

Model ATS1001D

Model ATS1001R

Model ATS2001D

Model ATS2001R

Model ATS2002R

NOTE TO INSTALLER: Please leave this manual with the customer for future reference.

Una versión en español de este manual está disponible para descargar en nuestra página web www.gen-tran.com/support/installation

MODEL NUMBER _____SERIAL NUMBER _____

DATE OF INSTALLATION _____DEALER NAME/PHONE _____

Please note your model number and serial number here for future reference. The serial number may be found inside the enclosure, lower left or right.

WARNING **OVATION™ Series Automatic Transfer Switches should NOT be used for Emergency Systems (See NEC Articles 517 and 700), nor as a Legally Required System (see NEC Article 701), nor for primary power in place of the electric utility or in life support applications.**

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SAFETY PRECAUTION DEFINITIONS:

CAUTION This symbol refers to a hazard or unsafe practice that can result in personal injury or product or property damage.

WARNING This symbol refers to a hazard or unsafe practice that can result in severe personal injury or death.

DANGER This symbol warns of immediate hazards that will result in severe personal injury, death or property damage.

CAUTION PLEASE READ THIS MANUAL IN ITS ENTIRETY BEFORE ATTEMPTING TO UNPACK, ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THIS EQUIPMENT. HAZARDOUS VOLTAGES ARE PRESENT INSIDE TRANSFER SWITCH ENCLOSURES THAT CAN CAUSE DEATH OR SEVERE PERSONAL INJURY. FOLLOW PROPER INSTALLATION, OPERATION AND MAINTENANCE PROCEDURES TO AVOID THESE VOLTAGES.

WARNING TRANSFER SWITCH EQUIPMENT COVERED BY THIS DOCUMENT IS DESIGNED AND TESTED TO OPERATE WITHIN ITS NAMEPLATE RATINGS. OPERATION OUTSIDE OF THESE RATINGS MAY CAUSE THE EQUIPMENT TO FAIL RESULTING IN DEATH, SERIOUS BODILY INJURY AND/OR PROPERTY DAMAGE. ALL RESPONSIBLE PERSONNEL SHOULD LOCATE THE DOOR-MOUNTED EQUIPMENT NAMEPLATE AND BE FAMILIAR WITH THE INFORMATION PROVIDED THEREIN.

WARNING High voltage in transfer panel components presents serious shock hazards that can result in severe personal injury or death. Read and follow all directions before installation and use.

DANGER Keep the automatic transfer switch panel closed. Make sure only authorized personnel have access to the cabinet. Due to the serious shock hazard from high voltages within the cabinet, all service and adjustments to the transfer switch must be performed by an electrician or authorized service personnel. All possible contingencies which may arise during installation, operation or maintenance, and all details and variations of this equipment do not purport to be covered by these instructions. If further information is desired by purchaser regarding his particular installation, operation or maintenance of particular equipment, contact Gen/Tran Corporation.

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SECTION 1 - INTRODUCTION

1.1 General Description

The OVATION™ Series Automatic Transfer Switch (ATS) system, used in conjunction with a standby generator, provides a convenient, economical way to maintain power in a home or business during a utility outage. The transfer switch senses when utility power is lost, starts a permanently installed generator and transfers the connected loads to generator power, reversing the sequence when utility power is restored.

Each OVATION™ Series ATS is tested and shipped from the factory with the following:

- Two-pole service disconnect circuit breaker mechanically interlocked with generator source circuit breaker
- Microprocessor based controller module with user display panel (UID).
- Sub-panel for installing and connecting branch circuit breakers (branch circuit breakers sold separately).
- Relay Kit (Model ATSRK) to connect certain stationary generators to the ATS
- Options:
    - The Control Module can accept up to 3 PowerPause™ Load Management modules (sold separately), together with PowerPause™ Relay Boxes to dynamically manage up to six 240 VAC, up to 50A loads (or up to 12 120VAC loads).
    - A surge protection module can be factory or field installed.
    - 22K AIC rated utility circuit breakers can be factory installed.

Transfer switches are used to protect critical electrical equipment and appliances against the loss of utility power. The appliance's normal power source is the utility, backed up by a secondary (generator) power source. The transfer switch is connected to both the utility and generator sources and supplies the appliance with power from either the normal or secondary source. In the event that the power is lost from the normal source (utility), the transfer switch system transfers the load to the secondary (generator) source. Once utility power is restored to the home or building, the transfer switch transfers the load back to the normal source, and initiates generator engine shutdown.

The following features are incorporated into each OVATION™ Series Automatic Transfer Switch:

- **Automatic Transfer Switch and Load-center combined in one enclosure** – Eliminates the need for a separate sub panel; significantly reduces installation time, expense and complexity. Load-center accepts interchangeable type circuit breakers from Siemens®, Square D®, Cutler-Hammer®, and GE®. See Section 2.2.
- **Service Entrance Rated** – All models carry service entrance ratings, eliminating the need for separate service entrance equipment.
- **Automatic Switching between utility and generator** – When the transfer switch senses partial or total loss of electricity for 5 seconds, it automatically starts the generator (equipped with appropriate remote-starting capabilities), and transfers the load to generator power with circuit breaker based switching.
- **Programmable Generator Exerciser** – Tests generator on a regular interval (programmable to 0, 7, 14 or 28 days) to help maintain a reliable generator.
- **User Interface Display** – User display with LEDs that indicate system status and situations requiring attention.

In the generator mode, optional PowerPause™ Load Management modules can manage up to six (6) 240 VAC (or 12 x 120 VAC) connected loads based on parameters set up at installation. As generator power capacity becomes available, the OVATION™ transfer switch will attempt to turn on each PowerPause™-controlled load until the generator reaches 85% utilization. This allows a larger number of loads – some intermittent – to be supported without nuisance tripping of the generator or investing in a larger generator. Installing an OVATION™ Automatic Transfer Switch system with PowerPause™ Load Management modules, most applications can utilize a generator that has 25% less output than standard installations with a conventional automatic transfer switch, reducing initial installation and generator operating costs and maintenance.

The startup and shutdown sequence limits the generator from rapid, intermittent start-up and shutdown, thus prolonging generator life. Here's how your OVATION™ Series ATS works:

1. Waits up to 5 seconds after sustained power loss to start up generator.
2. Waits up to 15 seconds to transfer load to generator. Delay looking for successful utility power grid re-strike.
3. Once utility power is restored, the system waits one minute to transfer the load back to utility.
4. Five minutes after re-transfer, the system completes the generator cool down and shuts down.

1.2 Standard Configurations:

TABLE 1.2

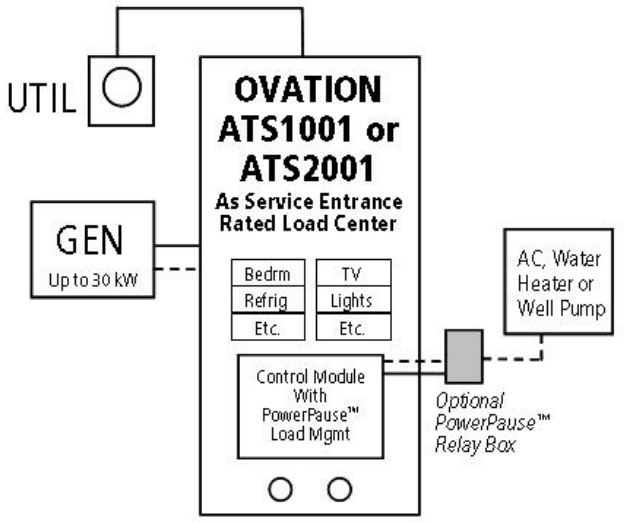
Model	ATS1001D	ATS1001R	ATS2001D	ATS2001R	ATS2002R
# Circuits (1 Pole)	14	16	38	38	4
Enclosure Type	NEMA 1	NEMA 3R	NEMA 1	NEMA 3R	NEMA 3R
GENERATOR Main	100 A, 2 Pole	100 A, 2 Pole	125 A, 2 Pole	125 A, 2 Pole	200 A, 2 Pole
UTILITY Main	100 A, 2 Pole	100 A, 2 Pole	200 A, 2 Pole	200 A, 2 Pole	200 A, 2 Pole
Max Amps @ 240V	100 Amps	100 Amps	125 Amps	125 Amps	200 Amps
Max Generator Size	Up to 25KW	Up to 25KW	Up to 30KW	Up to 30KW	Up to 50KW
Voltage	120/240VAC	120/240VAC	120/240VAC	120/240VAC	120/240VAC
Frequency/Phases	60 Hz, 1 Phase	60 Hz, 1 Phase	60 Hz, 1 Phase	60 Hz, 1 Phase	60 Hz, 1 Phase
Max GEN Size	25Kw	25Kw	30Kw	30Kw	50Kw
UTIL AIC Rating*	10K 22K available	10K 22K available	22K	22K	10K 22K available
Dimensions HxWxD	24"x14.31"x3.93"	28"x14.5"x4.25"	42"x14.31"x3.93"	41"x14.5"x4.25"	23.5"x18.5"x4.25"
Weight, LBS	28	27	46	43	23

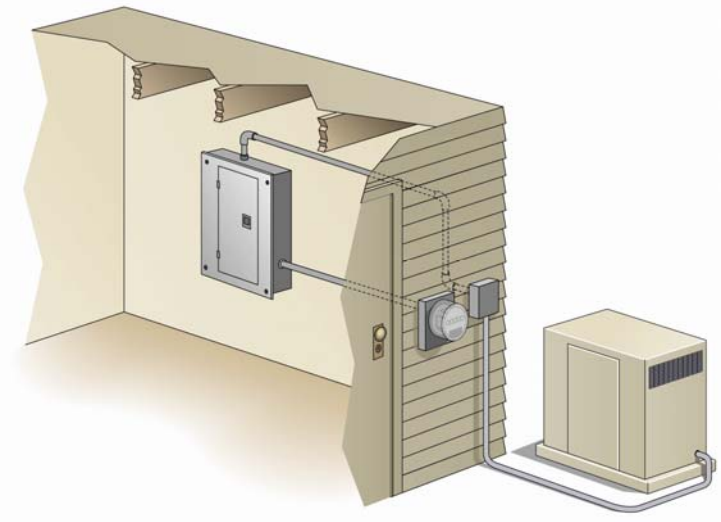
** 22K AIC rating available, order -22 suffix.*

CAUTION It is inappropriate to use any OVATION™ Series ATS to operate central air conditioning/heat pump systems unless the connected generator can deliver the required Locked Rotor Amps (LRA) required by the air conditioning/heat pump system. Incorrect connection of a central air conditioning/heat pump system to an OVATION™ Series ATS can be dangerous, and may cause damage to the transfer switch, generator, or air conditioning/heat pump equipment, and will void all warranties. Late model (2007+) air conditioning/heat pump compressors may require modification with Hard Start Kits to ensure proper startup under generator power. Consult a qualified HVAC contractor for more information.

1.3 Typical Installations:

NEW CONSTRUCTION:





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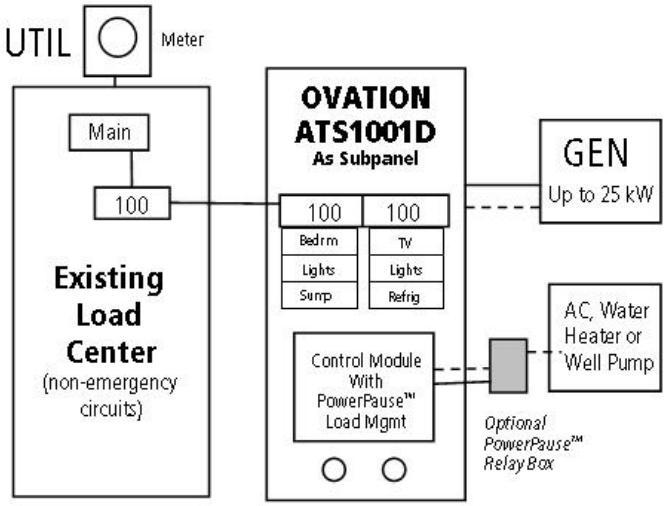
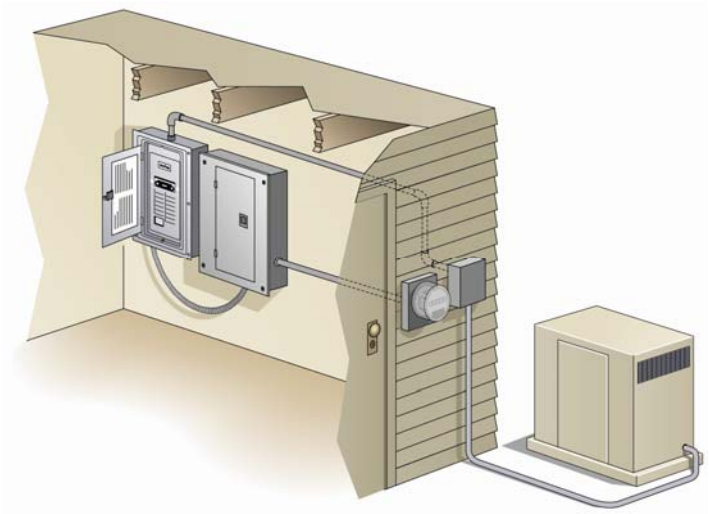
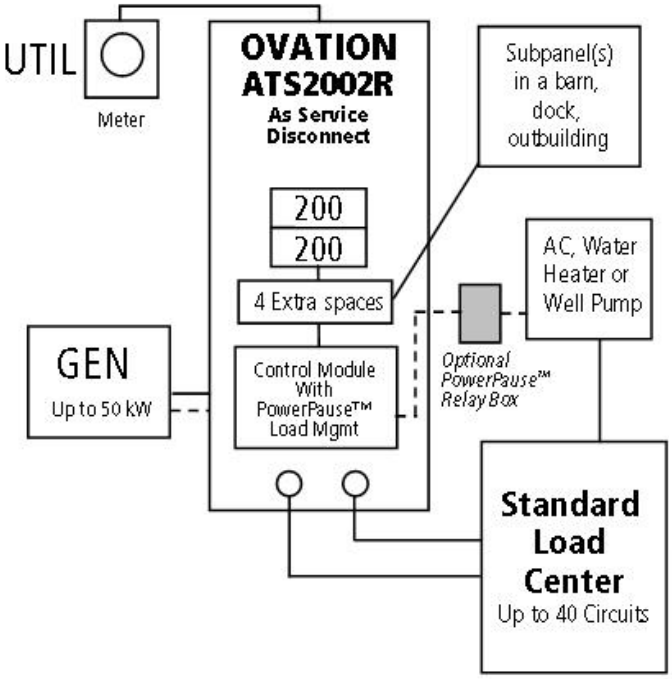
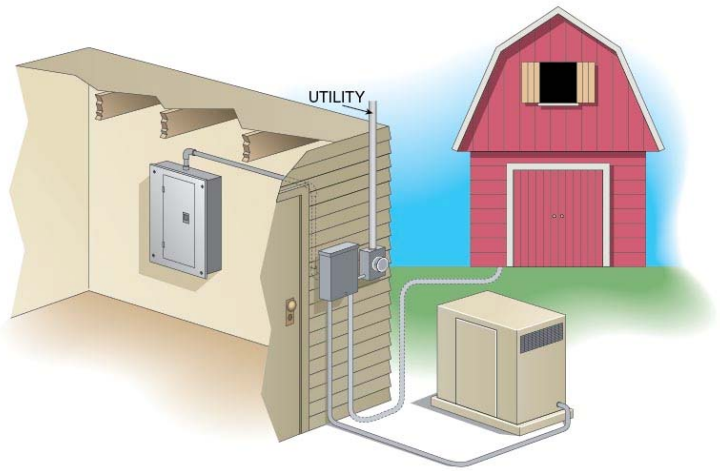








1.4 How the OVATION™ Series Automatic Transfer Switch Works:

1) When the utility power fails or drops below 190 volts or 54 Hz or exceeds 280 volts or 66 Hz, the OVATION™ Automatic Transfer Switch will begin the generator starting sequence after a 5-second delay.

2) Once the generator is started, the system is programmed to allow the generator to warm up and wait for possible successful utility power grid re-strike (approx. 15 seconds) before the load is transferred to generator power. At the time of load transfer to generator power, all appliances connected to PowerPause™ Load Management modules are disconnected ("locked out") for 5 minutes to avoid overloading the generator(e.g. allows time for head pressure bleed-off in AC Compressors). NOTE: For best results, electronic equipment such as computers, clocks, security systems and phone systems should be connected to an Uninterruptible Power System (UPS) to ensure no data is lost until transfer of power occurs.

3) The transfer switch will automatically monitor if the generator has sufficient available capacity to operate any or all appliances connected to PowerPause™ Load Management modules, starting with priority 1 Load, based upon appliance power requirements "learned" from a setup utility at the time of the transfer switch installation. One or more PowerPause™ Load Management connected appliances may operate simultaneously as long as the generator capacity utilization does not exceed 85%. If connected load exceeds 85% of generator capacity, the OVATION™ ATS will begin power management, and will lock out those appliances connected to the PowerPause™ Load Management modules in reverse priority order until the connected load is less than 85%. Those appliances that are "locked out" by the transfer switch will stay "locked out" for 5 minutes before the transfer switch will attempt to re-power the PowerPause™ connected appliances again.

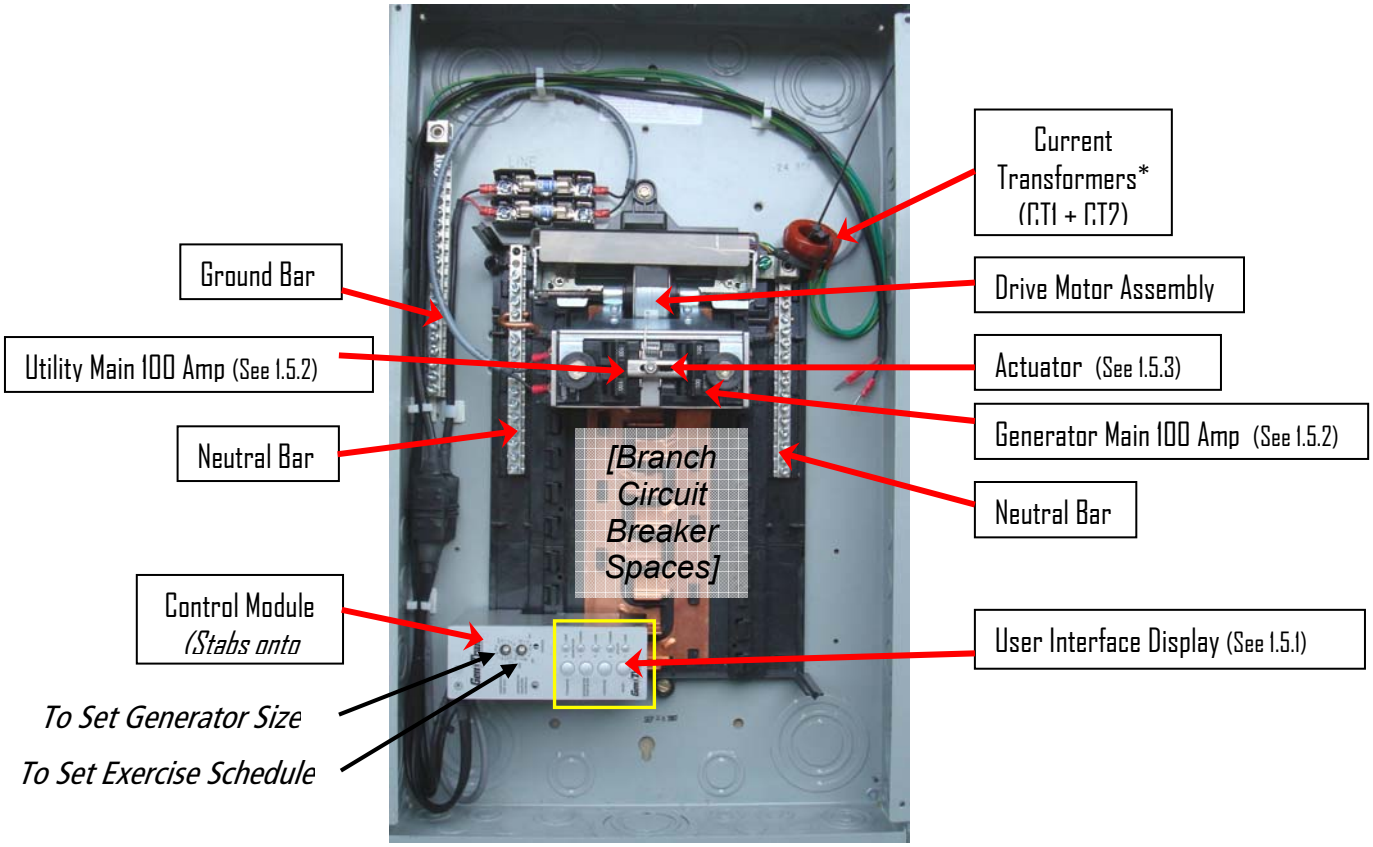
4) During the utility power failure, the generator will continue to power the load until it either runs out of fuel (gasoline, propane or diesel-powered gensets) or until the utility power is restored. *WARNING! Do NOT refuel generator while it is running. Turn off the Generator and allow it to cool down before refueling.*

5) When the utility power has been restored, the generator will continue to power loads for 60 seconds to ensure utility power has stabilized, then re-transfers the loads back to utility power.

6) The generator will continue to run without load for five minutes to cool down, and then is automatically shut off.

1.5 Key Components:

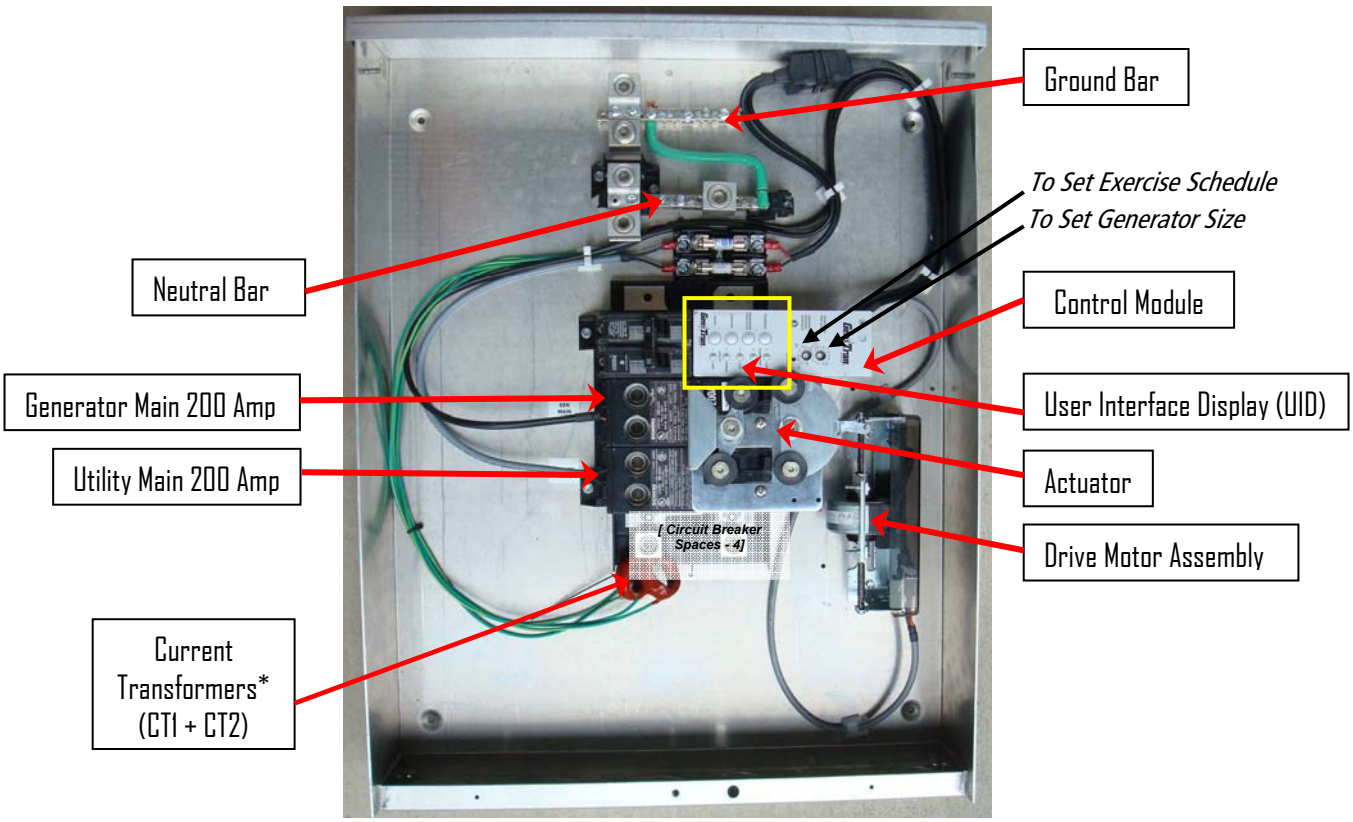
Model ATS1001D/R**



** Supplied with optional PowerPause™ Load Management Module (Model LSM)*
*** Not shown: ATSRK Relay Kit*

1.5 Key Components: (continued)

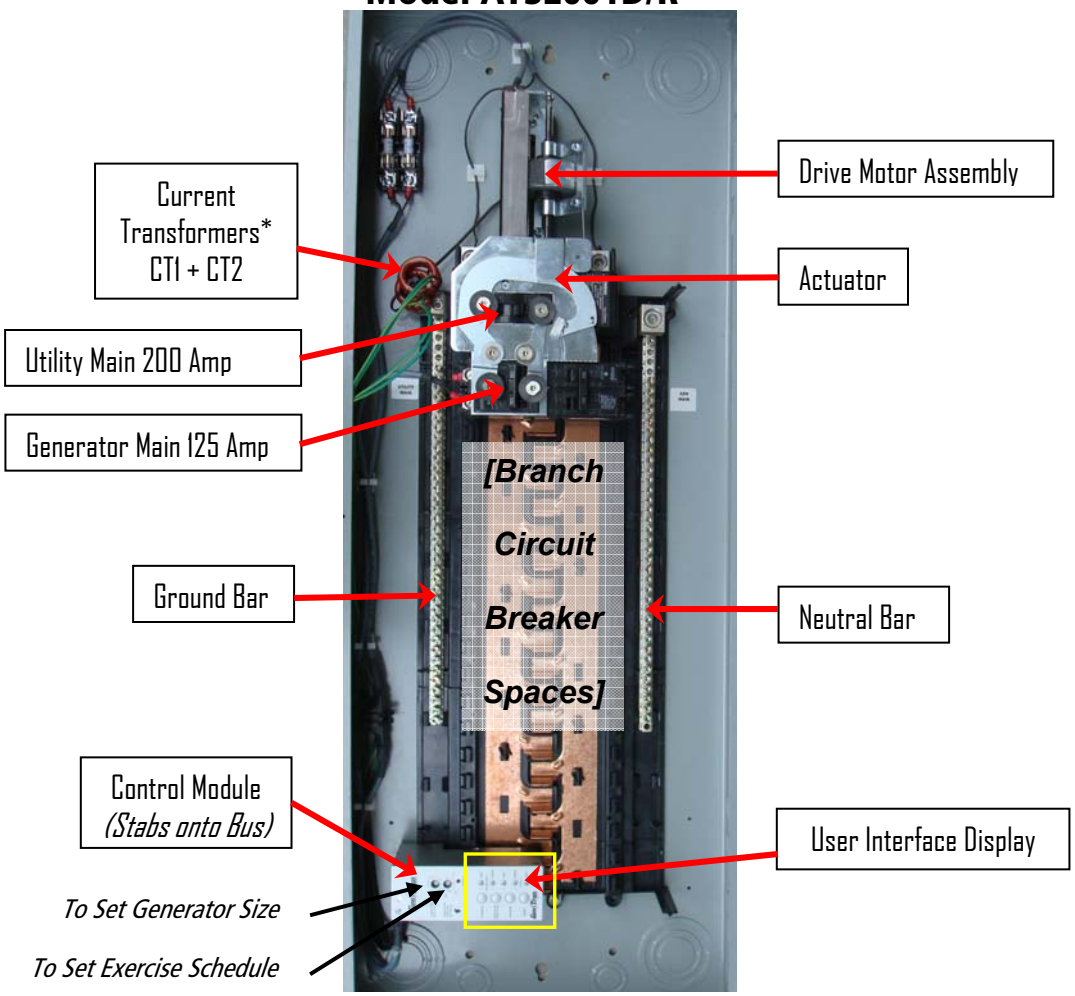
Model ATS2002R**



** Supplied with optional PowerPause™ Load Management Module (Model LSM)*
*** Not shown: ATSRK Relay Kit*

1.5 Key Components: (continued)

Model ATS2001D/R**



** Supplied with optional PowerPause™ Load Management Module (Model LSM)*
*** Not shown: ATSRK Relay Kit*

1.5.1 User Interface Display (UID)

The User Interface Display (UID), programming set switches and LEDs provide information about the transfer switch, generator and utility status. This UID is also used for programming the OVATION™ Series ATS for generator size, exercise intervals and other settings.

1.5.2 Utility and Generator Source Circuit Breakers

Siemens UL489 Listed 10K or 22K AIC utility circuit breakers act as Service Equipment disconnects and source feed wiring protection.

1.5.3 Mechanical Interlocked UTILITY and GENERATOR Main Circuit Breakers and Actuator

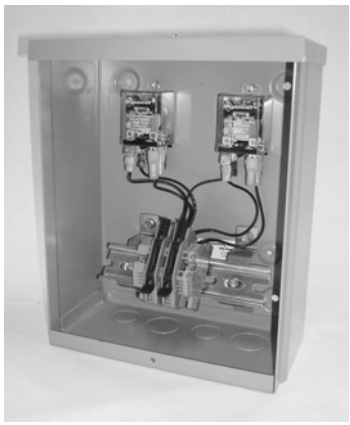
WARNING NEVER remove the mechanical interlocks/actuators unless the UTILITY or GENERATOR MAIN circuit breakers require replacement by a qualified service professional. UTILITY or GENERATOR MAIN circuit breakers are mechanically interlocked to prevent simultaneous UTILITY and GENERATOR power source feeds. Interlocks are automatically moved by a computer controlled actuator and motor, which may move the circuit breaker handles at any time.

1.5.4 PowerPause™ Load Management Modules (Optional)

Up to 6 connected loads based on parameters set up at installation are actively managed to optimize generator capacity utilization. As generator power capacity becomes available, the transfer switch will attempt to turn on each load controlled by PowerPause™ Load Management until the generator reaches 85% output utilization. Ideal for seasonal (i.e. air conditioning, pool equipment, etc) or intermittent (i.e. hot water heater, range, etc) loads. Contact your distributor or Gen/Tran for additional accessories information.

1.5.5 Remote PowerPause™ Relay Box (Optional)

The PowerPause ™ Relay Box can control up to two 2-Pole (240VAC) 30A or 50A loads by interrupting power to the load when commanded by the PowerPause ™ Load Management Module, thereby preventing overloading the standby generator. Packaged in a NEMA 3R enclosure, the PowerPause ™ Relay Box can be conveniently installed indoors or outdoors adjacent to the load center, OVATION™ Automatic Transfer Switch or controlled load. See Photo at right.



1.5.6 Surge Protection Module (Optional)

Using state-of-the-art technology, a combination surge arrester module and two single pole 20or 30 amp circuit breakers is designed to protect devices connected to the transfer from surges coming in from the power lines.

1.6 Standards Compliance

OVATION™ Series ATS systems have been tested and listed by Underwriters Laboratories (UL) to standard UL67. UL performs periodic factory inspections to ensure compliance with the engineering documentation. Call Factory if your installer needs the UL file number.

Each OVATION™ Series ATS complies with NFPA 70 (National Electric Code) Article 702 as an "automatic transfer switch for use in Optional Standby Systems."

IMPORTANT: The OVATION™ Series ATS should NOT be used for emergency system (see NEC Articles 517 and 700), nor as a Legally Required System (see NEC Article 701), nor for primary power in place of the electric utility or in life support applications.

SECTION 2 – COMPATIBLE EQUIPMENT

2.1 Compatible Generators

In order for the OVATION™ Series ATS to function as designed, it **must** be connected to a permanently installed, automatic starting generator, with a continuous supply of fuel, such as gasoline, diesel, LPG or natural gas. Additionally, gasoline or diesel-powered generators **must** be equipped with automatic choke **and** electric/remote start. All OVATION™ Series ATS systems supports 2-wire (ON, +12V) or 4-wire (CRANK, ON, +12V, -12V) generator signaling.

Note: Many generators require additional control circuits to properly operate with OVATION™ Series ATS. Contact Gen/Tran or visit http://www.gen-tran.com/content/support/installation_instructions.asp , see: **Ovation™ Series ATS – Generator Connection Diagrams** for additional information.

2.2 Compatible Circuit Breakers

Each OVATION™ Series ATS has been configured; factory tested and shipped with the UTILITY MAIN and GENERATOR MAIN circuit breakers installed. Compatible branch circuit breakers (supplied by installer) are as follows:

COMPATIBLE CIRCUIT BREAKER TYPES:

- Siemens QAF (arc fault), QFH, QE, QEH, QFP, QNR, QNRH, QP, QPH, QF, QT, QPF (GFCI), QSAP (Surge Protector), HQP
- Cutler-Hammer/Westinghouse Series BD, BR, BQ, GFC
- Square D Series HOM*
- GE Series THQL, THHQL (60 amp maximum)

**NOTE: Square D HOM series branch circuit breakers cannot be installed in the top right position on Models ATS2001D and ATS2001R. If you are planning to use Square D branch circuit breakers, please install them in other positions on the bus.*

SECTION 3 – PREPARING FOR INSTALLATION

DANGER ALL Gen/Tran OVATION™ Series ATS systems should be installed by a professional licensed electrician familiar with electrical wiring and codes, and experienced in working with generators. Gen/Tran accepts no responsibility for accidents caused by incorrect and/or improper installation. OVATION™ Series ATS systems are designed and intended for installation with 120/240VAC, single-phase applications ONLY.

3.1 Tools and Documents Required

- Electric Drill
- Wire Cutter/Stripper for 18 to 8 gauge AWG wire
- Screwdrivers – Straight Blade and Phillips
- Hammer
- Digital Voltmeter (DVM)
- Stud Finder – For flush mounting in existing construction
- Hole Saw – For flush mount installations
- Installation/Owners Manual for generator being installed to determine correct wiring to the OVATION™ ATS

OTHER ITEMS YOU MAY NEED:

- Anchors and screws to mount transfer switch
- 12 VDC battery charger for generator.
- If installing as a sub panel, a new 100 or 200A 2-pole, 240V circuit breaker to mount in main load center – amperage to match utility breaker (see specifications Table I for Utility Main Breaker size – should be manufactured by same as Main load center).
- Standard, Arc-fault, GFCI or Surge protection circuit breakers for branch circuits. If Arc-fault, GFCI or Surge protection circuit breakers are used as the branch circuit protector in the main load center, they MUST be used in the transfer switch. See Section 2.2 for compatible breakers. (Available through most electrical distributors).
- Appropriately sized conduit, wire and fittings to terminate UTILITY MAIN, GENERATOR MAIN source power and branch circuits into the transfer switch
- 18 AWG, 3 or 4 conductor, 300V, UL Listed wire (for low voltage signaling between transfer switch and generator).
- An additional Relay Kit (PN: ATSRK) for generator control. See Section 2.1 if required.

3.2 Unpacking/Inspection

After unpacking, carefully inspect the transfer switch for shipping damage. Shipping Damage is not warranted. Contact the freight carrier for claims. Contact your local distributor or Gen/Tran to order missing or replacement parts. Retain paint/plaster shield for use after installation.

3.3 Mounting Location

The OVATION™ Series ATS may be installed outdoors (if NEMA Type 3R enclosure, Models ATS1001R, ATS2001R or ATS2002R) or indoors next to the existing load center or meter base in the house or building. Choose a location that offers a flat, rigid mounting surface capable of supporting the weight of the transfer switch. Avoid locations that are moist, hot, and dusty or contain corrosive substances. Models ATS1001D and ATS2001D may be flush mounted; check that there are no pipes, wires or other obstructions or interferences in the immediate area.

3.4 Planning, Selecting and Prioritizing Your Circuits

1) Provide your installer with a list of the appliances or circuits you want to have powered during a power outage. Examples might include: Refrigerator, freezer, furnace, microwave, lights, well pump, television, garage door opener, aquarium, computer, phone, security system, air conditioner, hot water heater, electric range, pool pump, etc. Review the labels on your load center to determine which circuit breakers these appliances are assigned to. You may need to turn off and on various circuit breakers in your load center to determine the circuits. Circuits/appliances can be selected from two different adjacent load centers. NOTE: You cannot select a single appliance that exceeds the generator output rating. For example, a typical electric range is connected to a 2-pole 50 amp circuit breaker. If your generator's maximum output rating is only 7500 Watts (30 amps at 240Volts AC), then you cannot select the electric range for back-up power because your generator cannot produce enough power to run this appliance.

2) Your Installer will determine if all of the desired back-up loads can be operated by the generator at the same time. If not, you will need to purchase/install PowerPause™ Load Management modules to manage pre-determined loads so as to not exceed the generator capacity.
3) If PowerPause™ Load Management modules are required, determine which appliances will be connected to the PowerPause™ modules (up to six appliances, 240VAC, 50A). Central air condition compressors can be directly connected and controlled by a PowerPause™ Load Management module via the 24 VAC thermostat circuit.
4) Assign a priority to each circuits/appliances by ranking them from most important to least important, with 1 being most important. Keep in mind that less important circuits will be powered infrequently by the generator and possibly not at all if the generator does not have capacity available to start and run the appliance. Complete Table 3.4 below.

For example, let's assume that your first floor central air conditioning system is your most important PowerPause™ Load Management appliance (priority 1), as it is the most important occasionally operating priority load (i.e.: it does not need to operate all of the time, but when there is sufficient generator capacity available, it is the first load desirable to operate). Typically a central AC system will be connected to two circuit breakers: one 15A 1-pole circuit breaker for the air handling unit and one 30A 2-pole circuit breaker for the outdoor AC compressor unit. Only the AC compressor unit should be connected to a PowerPause™ Load Management module in priority position 1; with the air handler continuously connected to generator power, air will continue to circulate within the house.

Continuing with the example, let's say the second priority appliance is a 30 gallon electric water heater, which will require connection to a PowerPause™ Load Management Module and a PowerPause™ Relay Box. Install the PowerPause™ Relay Box as close to the load center where the 30 Amp 2-pole circuit breaker is located for the water heater.

POWERPAUSE™ LOAD MANAGEMENT PRIORITY **TABLE 3.4**

Priority	Appliance	Circuit Breaker	Circuit in Load Center
EXAMPLE			
1	1st Floor air conditioner compressor	30A, 2P	23/24
2	30 Gal electric hot water heater	30A, 2P	15/16
Priority	**Appliance**	**Circuit Breaker**	**Circuit in Load Center**
1			
2			
3			
4			
5			
6			

Typical appliances recommended (OK) to connect to a PowerPause ™ Relay Box:

- Electric oven
- Electric cook top
- Electric range
- Electric hot water heater (tank)
- Instant hot water heater
- Electric clothes dryer
- Well pump
- Fountain
- Spa equipment
- Pool equipment
- Outbuilding
- Boat lift
- Room air conditioner
- Supplemental electric space heater

NOTE: Most central air conditioning compressor units are controller through a 24 VAC thermostat control circuit. If central air conditioning load management is required, interrupt the 24 VAC thermostat control circuit by wiring directly in series with the PowerPause ™ Load Management module.

NOTE: **Critical** loads that MUST operate when required should NOT be connected to a PowerPause ™ Load Management Module. It is recommended that the generator and transfer switch be sized properly to power ALL **critical** loads without the need for load management. The PowerPause ™ Load Management Module and Relay Box can and will disconnect power to connected loads without notice and may not re-power the load until utility power is restored.

Examples of critical loads that are NOT recommended (NOT OK) to be connected to the PowerPause ™ Load Management Module and Relay Box are:

- Refrigerators and freezers
- Aquariums
- Central heating systems (gas, oil, electric)
- Furnace fan (air handler)
- Sump pumps
- Septic lift pumps
- Pool and spa anti-freeze pumps
- Medical, safety and security equipment
- Garage door openers
- Access gates
- Computer, printer, fax, phone and router

SECTION 4 – INSTALLATION AND WIRING

CAUTION Extreme care should be taken to protect the transfer switch from drill chips, fillings, and other contaminants when making the cable entry holes and mounting the enclosure to prevent component damage or a future malfunction.

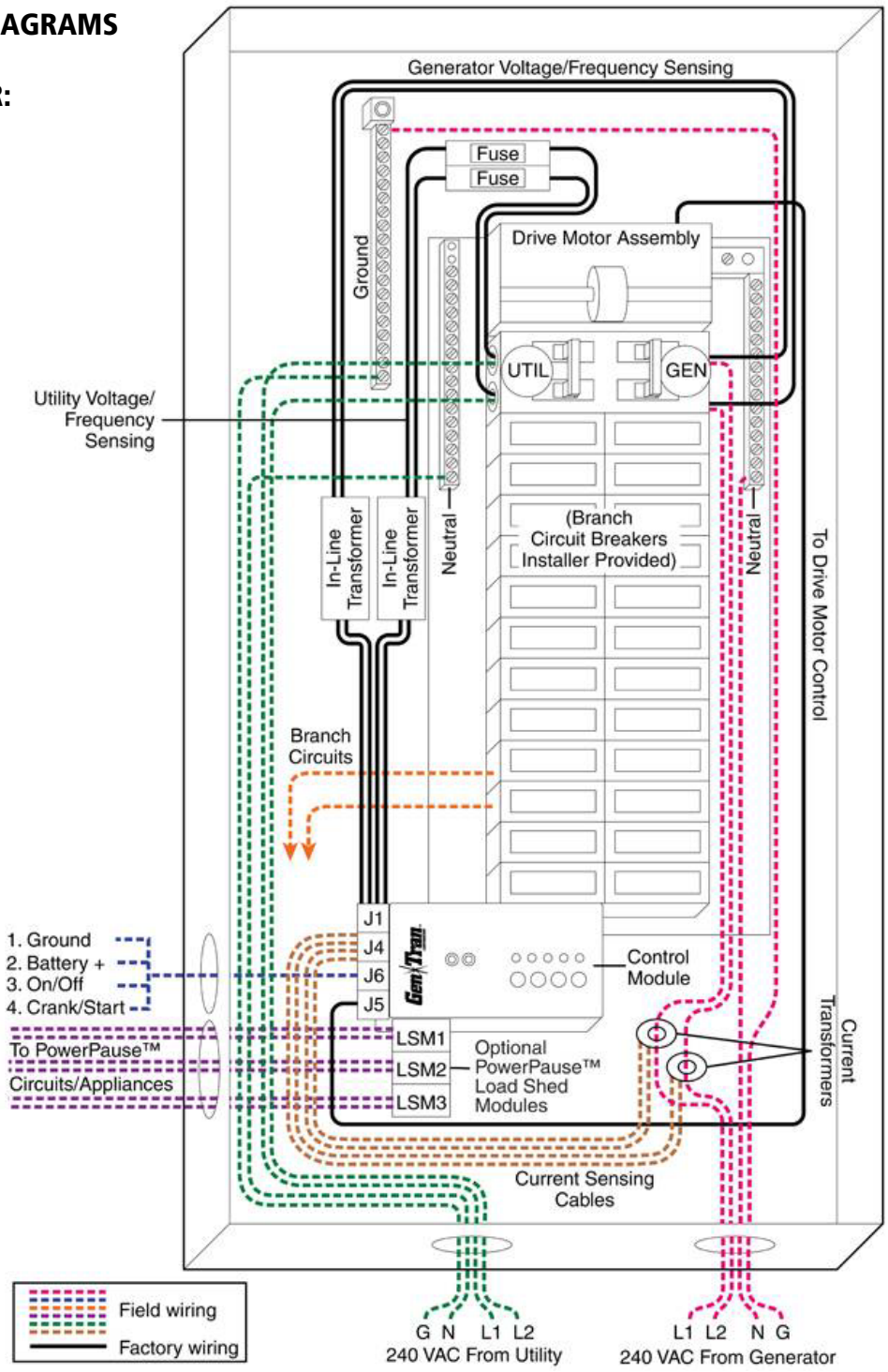
WARNING This device should be installed in accordance with all local codes, standards and regulations and the latest edition of the National Electrical Code®.

WARNING Do not allow petroleum-based (hydrocarbon) sprays, chemicals, solvents or any paint to contact interior components. Petroleum based chemicals can cause degradation of electrical insulating materials.

INTERNAL WIRING DIAGRAMS

MODELS ATS1001D/R:

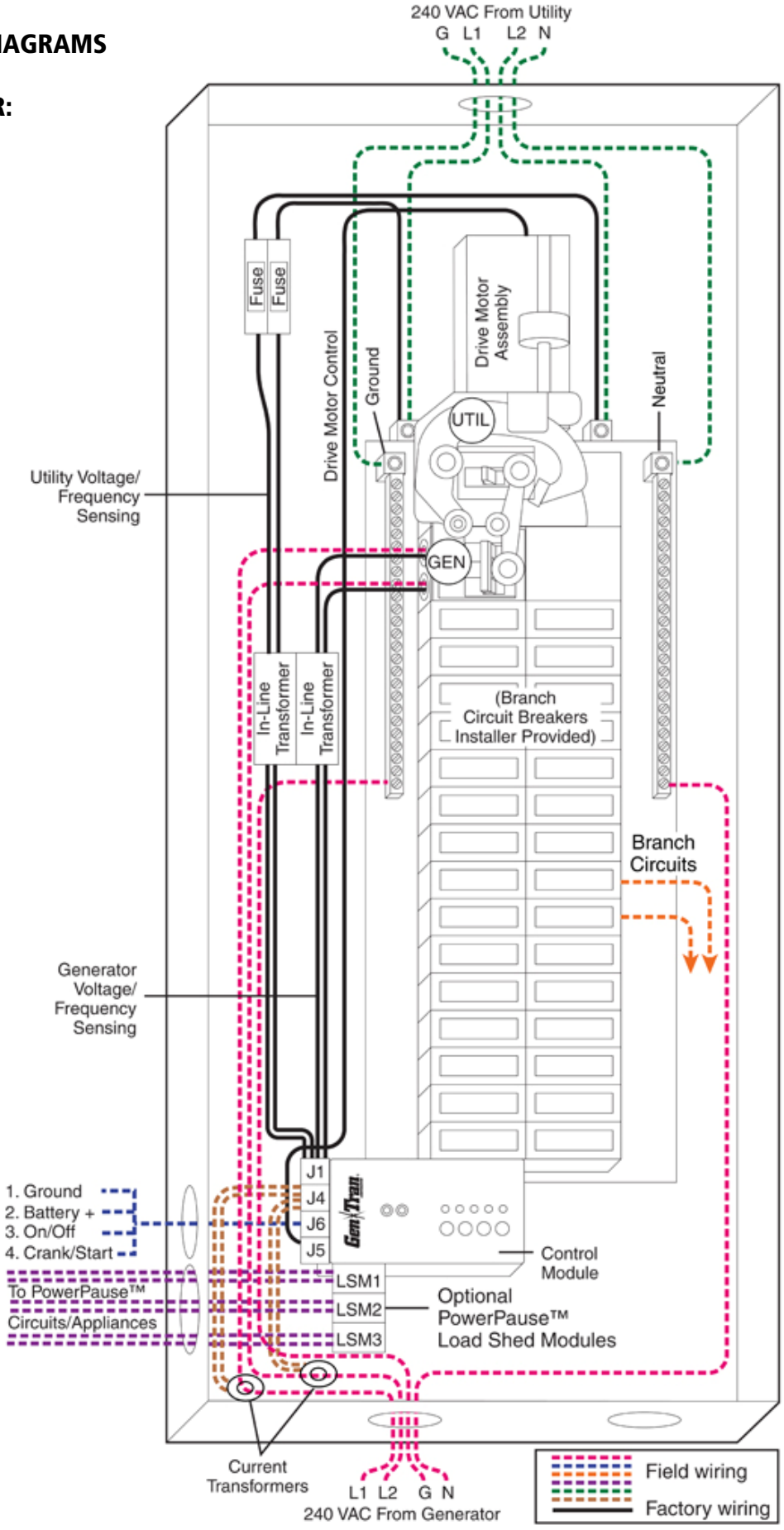
Diagram 4.1



INTERNAL WIRING DIAGRAMS

MODELS ATS2001D/R:

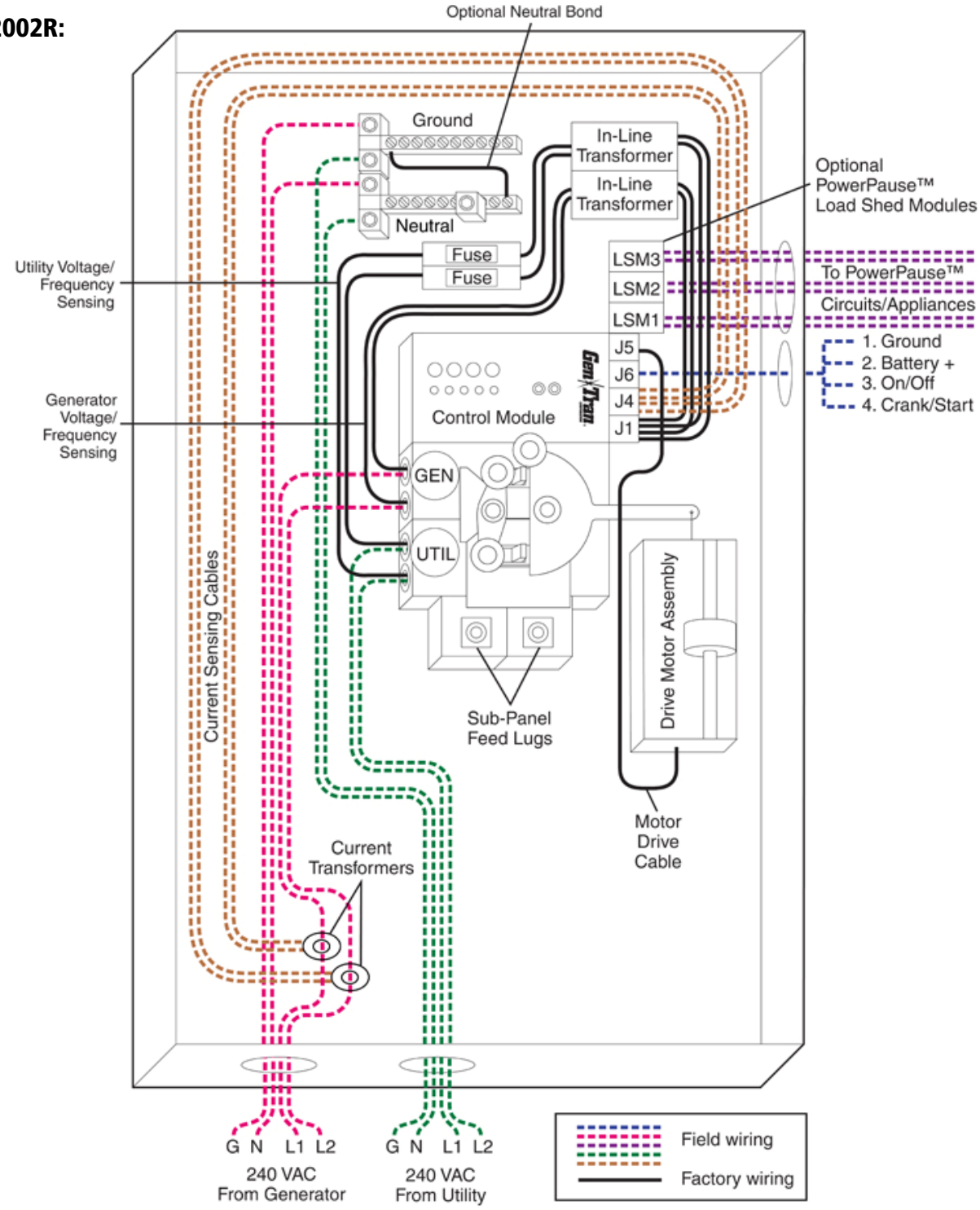
Diagram 4.2



INTERNAL WIRING DIAGRAMS

MODEL ATS2002R:

Diagram 4.3



4.1 Standard Mounting Procedures

4 .1.1. As Service Equipment and/or primary Load Center Panel: Models ATS1001D/R, ATS2001D/R or ATS2002R:

When using the transfer switch as Service Entrance Equipment, mount the OVATION™ Series ATS as close as possible to the utility meter.

NOTE on Models ATS1001R, ATS2001R and ATS2002R only (NEMA Type 3R enclosures): If conduit hub is required, purchase separately from an authorized Siemens distributor, following directions provided. See product label on door/cover for list of hubs available. See product label on door/cover for conduit hub part numbers. Punch appropriate size hub hole in Model ATS2002R enclosure, all other enclosures have pre-punched hub holes. If a conduit hub will not be used, install included cover plate using provided hardware.

1. Remove the cover and dead front from the OVATION™ Series ATS. Hold it level against the mounting surface, mark and drill the mounting holes. If flush mounting, locate between appropriate studs and secure properly. Required knockouts may be removed prior to mounting.
2. Remove the cables plugged into the Control Module. Care should be taken in unplugging these cables as they have a securing 'latch'. Forcing the cables loose will damage the connectors. Observe that the power mating plug J6 is installed in the connector. Unplug it and set aside for future use in Section 4.3.
3. To avoid debris and metal chips from entering the Control Module, cover or remove the Control Module from the panel, to remove, slide it towards the center of the panel then lift the outside end to disengage it from the locking tabs in the base of the panel, then pull the Control Module up to disengage it from the contacts on the bus. Note: to install the Control Module, reverse the above removal instructions. See Fig.4.1.1.3

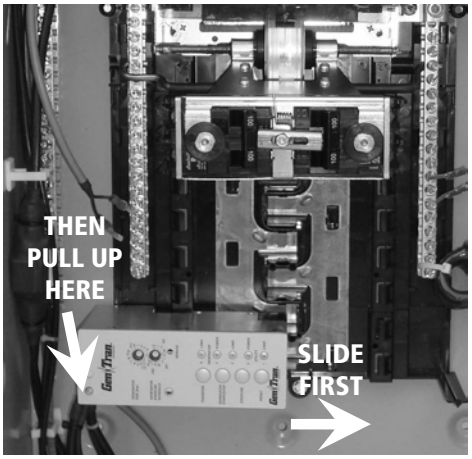


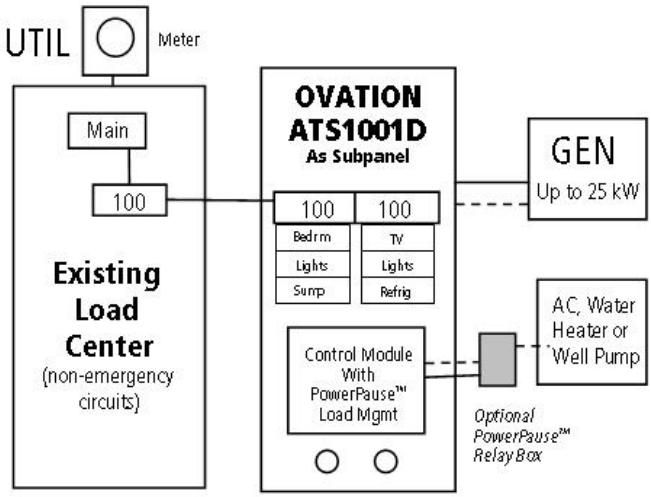
FIGURE 4.1.1.3

4. Cover or remove the installed circuit breakers and associated mechanisms from dust and metal chips.
5. Fasten the OVATION™ Series ATS to mounting surface with appropriate fasteners (not provided); use spacers behind the mounting holes to ensure the enclosure is plumb and not distorted.
6. Install appropriately sized Utility and Generator source wire into the enclosure and use proper fittings to secure and provide proper protection to conductor insulation. (For more information on wire size and ampacity ratings, see NEC Article 310, Table 310.16). The OVATION™ Series ATS have been UL Listed for use with Copper or AL wire.
7. Connect the X and Y source wire to the appropriate circuit breaker terminals marked "UTILITY MAIN" or "GENERATOR MAIN". If optional PowerPause™ Load Management Modules are going to be installed, each X and Y generator source wire should pass through the hole of current transformer on the current sense cable supplied with PowerPause Load Management module kit BEFORE connection to GENERATOR MAIN circuit breaker. Route current sense cable as shown in diagrams 4.1 – 4.3, and plug P4 into J4 on Control Module. Ensure UTILITY and GENERATOR SENSE lead wires located in UTILITY and GENERATOR MAIN circuit breaker lugs remain in the UTILITY and GENERATOR MAIN lugs when tightening the UTILITY and GENERATOR MAIN source wire. When AL conductors are used, the application of a UL-Listed conductor termination compound is recommended. Connect neutral and ground source wires from the utility and generator to the corresponding NEUTRAL and GROUND bars. Refer to product label on transfer switch for correct terminal tightening torque requirements.
8. If transfer switch is used as Service Equipment:
   a. ATS1001D/R: Tighten "NEUTRAL BOND" green screw at top of right hand neutral bar into enclosure.
   b. ATS2001D/R: Install "NEUTRAL BOND" kit provided, following Installation Instructions included with kit.
   c. ATS2002R: Connect provided "NEUTRAL BOND" pigtail located on neutral buss to ground bus.

   Apply provided "Service Disconnect" label next to the UTILITY MAIN circuit breaker on deadfront.
9. Install branch circuit breakers and wiring as required.
10. If transfer switch is installed in new construction, affix provided paint/plaster shield to transfer switch to keep interior clean. Remove when all wallboard and painting is completed and proceed to next step.
11. Install and wire the correct type and rating of compatible branch circuit breakers (see Section 2.2), complying with the product label wiring diagram for each branch circuit. See the branch circuit breaker markings for correct wire size and tightening torque requirements.
12. Ensure all wires are clear of the actuator/motor module and mechanical interlocks.
13. Reinstall all components and cables if removed, and proceed to Section 4.2.

4.1.2. As a Generator subpanel: Models ATS1001D/R:

If using the Ovation™ Series ATS as a generator sub panel, mount the transfer switch as close to the load center as possible. The OVATION™ ATS can be installed on either the left or right side of the load center. If flush-mounting is desired, the OVATION™ ATS can be mounted in the adjacent stud space next to the existing load center.

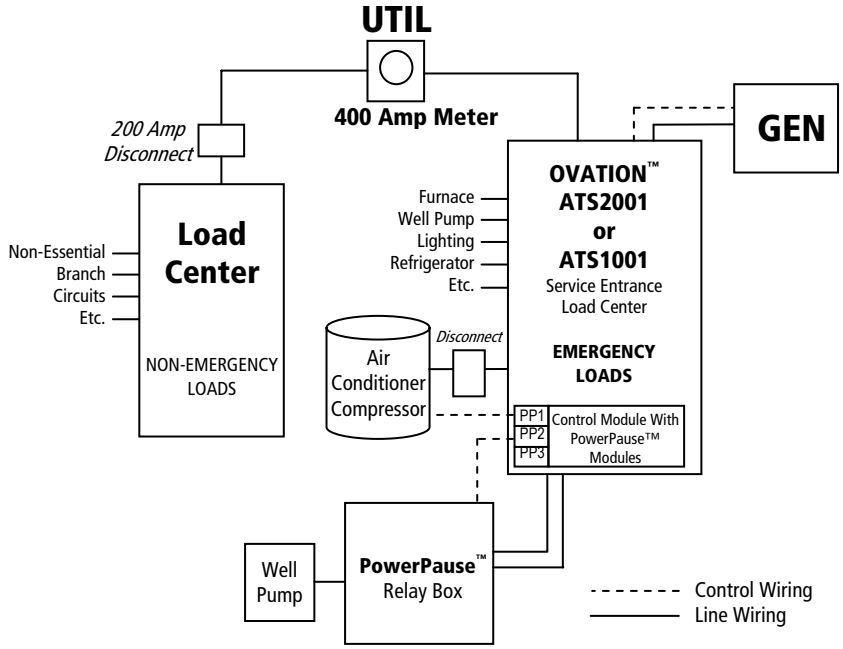


1. Follow steps 1-2 as above.
2. TURN OFF the main circuit breaker supplying power to existing load center. Remove cover from load center.
3. Install appropriate sized conduit, fittings and wire between transfer switch and load center to accommodate all branch circuits that will be relocated to the transfer switch and UTILITY MAIN feed (4 wire) from load center to transfer switch.
4. Remove branch circuit wires from circuit breakers that will be relocated to transfer switch. Remove two adjacent single pole circuit breakers from which branch circuit wires were removed. Install NEW 2-pole circuit breaker (as noted in the Other Items Needed Section). Circuit breaker must have the same rating as UTILITY MAIN circuit breaker in transfer switch.
5. Connect UTILITY MAIN feed wire from new circuit breaker in load center to UTILITY MAIN circuit breaker in transfer switch. The OVATION™ Series ATS have been UL Listed for use with Copper or AL wire.
6. Install and connect appropriately sized wire from the generator to the terminals marked "GENERATOR MAIN". If installing the Current Sense Cable provided with the optional PowerPause™ Load Management Module Kit, each X and Y generator source wire should pass through the hole of current transformer on the Current Sense Cable before connection to GENERATOR MAIN circuit breaker. Ensure UTILITY and GENERATOR SENSE lead wires located in UTILITY and GENERATOR MAIN circuit breaker lugs remain in the UTILITY and GENERATOR MAIN lugs when tightening the UTILITY and GENERATOR MAIN source wire. When AL conductors are used, the application of a UL-Listed conductor termination compound is recommended. Connect neutral and ground source wires from the utility and generator to the corresponding NEUTRAL and GROUND bars. Refer to product label on transfer switch for correct terminal tightening torque requirements.
7. If the OVATION™ Series ATS is installed in new construction, affix paint/plaster shield to OVATION™ ATS to keep interior clean. Remove when all wallboard and painting is completed and proceed to next step.
8. Install and wire the correct type and rating of compatible branch circuit breakers (see Section 2), complying with the product label wiring diagram for each branch circuit. See the branch circuit breaker markings for correct wire size and tightening torque requirements.
9. Ensure all wires are clear of the actuator/motor module and mechanical interlocks.
10. Proceed to Section 4.2.

4.2 Mounting Procedure for Two Load Centers

When the main service is 400A or more and/or 2 or more load centers will be installed, dedicate one load center to non-emergency loads (not connected to generator power) and the 2nd load center as an OVATION™ Model 1001 or 2001D/R load center/transfer switch for generator back-up circuits. Follow 4.1 Standard Mounting Procedures for installation.

Ovation™ ATS As Load Center With 400 Amp Service



4.3 Connecting the Low Voltage Cable to the OVATION™ Series ATS

The low voltage cable delivers important signaling information between the generator and the OVATION™ ATS for generator startup, running and shutdown and powers the Control Module with the generator battery. Some generators utilize all four wires for signaling while others use only three or two wires. Since no two generators are alike, the termination of the low voltage cable to the generator will be different from manufacturer to manufacturer. Refer to the generator manufacturer's installation instructions and visit http://www.gen-tran.com/support/installation instructions for additional information for proper connection of low voltage wiring.

Three or four-conductor, UL listed, 300V, 18 AWG (Type TC recommended) wire minimum is required.

WARNING Low voltage wire cannot be installed in the same conduit as the generator wires UNLESS at least 300V rated.

The low voltage cable will be terminated in the transfer switch on the control module. There is a small black 4-position terminal connector (delivered plugged into J6 on the Control Module) that is labeled to indicate how to connect the low voltage cable. The low voltage cable should be stripped about ¼" and inserted in the terminal block and tightened as shown in Figure 4.3. A 12 VDC contact closure is provided between Pin 1&3 (close to run). If a voltage free contact closure is required to start/run/stop the generator, terminate Pin 1&3 to the coil side of the ATSRK Relay Kit and terminate the primary side of the relay to the generator control.

Table 4.3

PIN NUMBER on J6	FUNCTION
1	Ground (-12VDC)
2	Battery + (+12VDC)
3	ON/OFF (RUN)
4	Crank/Start

Note: Pin 1 is located towards the top of the Control Module.

Figure 4.3

IMPORTANT: The OVATION™ Series ATS is powered by the 12VDC battery located in the generator. The + and -12VDC MUST be brought over from the generator. If the generator is a 2-wire control system, use a 3-wire conductor to ensure a -12VDC signal is wired to the transfer switch on PIN 1. If 3-wire conductor is not available, install a jumper between PIN 1 and the ground bar in the OVATION™ ATS.

NOTE: Not all generators require four control wires to operate. Some may combine the CRANK and ON function in which case the CRANK wire is not required. Additionally, select generators are controlled by a 240VAC signal from the transfer switch. If you need assistance with your particular generator-transfer switch control connection, contact your distributor or Gen/Tran for control wiring instructions.

4.4 Connecting the Low Voltage Cable to the Generator

There is a terminal block in the wiring compartment of the generator to connect the power cables and the low voltage wire to control the generator. Some generators use 2, others 4 control wires. Refer to the generator installation manual for proper connection.

1. Connect the PIN 1 wire from the transfer switch to the battery "–" (negative) terminal. If there is no battery terminal block, run the PIN 1 wire to the "–" (negative) post on the battery itself.
2. Connect the PIN 2 wire from the transfer switch to the battery "+" (positive) terminal.
3. Connect the PIN 3 wire from the transfer switch to the ON/OFF terminal on the generator. This wire starts and runs the generator. If your generator has a 2 or 3-wire system, the PIN 3 wire should be installed with the PIN 2 wire as the other + (positive) wire on the battery.
4. Connect the PIN 4 wire from the transfer switch to the Crank or Start terminal (only used on generators having a separate Start terminal.) The PIN 4 wire is not used if there is no specific Crank/Start terminal on the generator.

4.5 Installing and Wiring PowerPause™ Load Management Modules (optional)

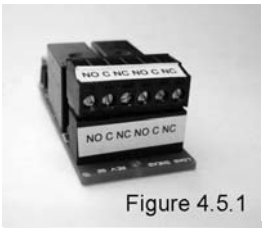


Figure 4.5.1

Optional PowerPause™ Load Management Modules (Figure 4.5.1) are required when the load connected to the generator exceeds the generator capacity and dynamic load management is needed. Each PowerPause™ Load Management Module can control up to 2 loads; up to 3 Load Management Modules can be installed into each Control Module, 6 (240V) managed loads in total (or 12 x 120V loads). Load management priority is determined at time of installation.

1. Remove Control Module from transfer switch. Refer to Figure 4.1.1.3.
   a. Remove branch circuit breaker (if installed) opposite controller module.
   b. Slide Control Module ½" towards circuit breaker bus stabs (towards center of enclosure).
   c. Pull up outside end of Control Module ¾"so that controller module is tilted up about 30° degrees.
   d. Pull Control Module off of circuit breaker bus stab.
2. Unplug all cables from the Control Module. Cable marking is not required, as connectors are uniquely keyed; each connector can only be inserted into its proper location.
3. Remove five (5) screws holding black plastic shield in place. Set aside screws. See Figure 4.5.3.
4. Rotate shield ¼ turn, align three (3) top holes and one (1) side hole to metal enclosure, re-install four (4) screws until tight, discard extra screw. See Figure 4.5.4.
5. Refer to completed TABLE 3.4 for POWERPAUSE™ LOAD MANAGEMENT CIRCUIT PRIORITY. Note the 1-6 position label on shield edge and three - 5 pin white plugs on Control Module circuit board. The priority of the managed load wired to the PowerPause™ Load Management Module is determined by the location the Module is installed on the control module circuit board, the lower the location #, the higher the priority (1=highest, 6=lowest). Install PowerPause™ Load Management Modules left-to-right, priority location 1-2 first, by inserting a PowerPause™ Load Management Module into left-side 5 pin plug and securing with provided #2x.25 Plastite screw. Repeat for up to 2 additional PowerPause™ Load Management Modules. Do not skip over priority locations: i.e. Use location 1-2 for the first Module, location 3-4 for a second Module and location 5-6 for a third Module. See Figure 4.5.5.
6. Observe mating connector on PowerPause™ Load Management Module(s) labeled NO-C-NC NO-C-NC. Based on the relay type selected to manage loads (Normally Open (NO) or Normally Closed (NC)), strip 18AWG, 300V relay control wire ¼" and insert and tighten into C (common) terminal and NO or NC terminal. Repeat for priority 2-6 loads. Tighten all wire connections to proper torque. NOTE: If wiring the Module in series to the 24VAC A/C compressor thermostat control circuit, wire to the C and NC terminals, if to a PowerPause™ Relay Systems, wire to the C and NO terminals. See Figure 4.5.6.

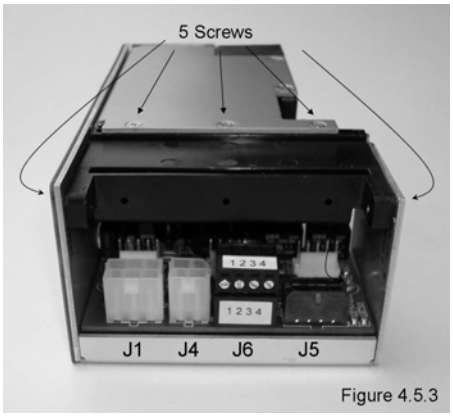


Figure 4.5.3

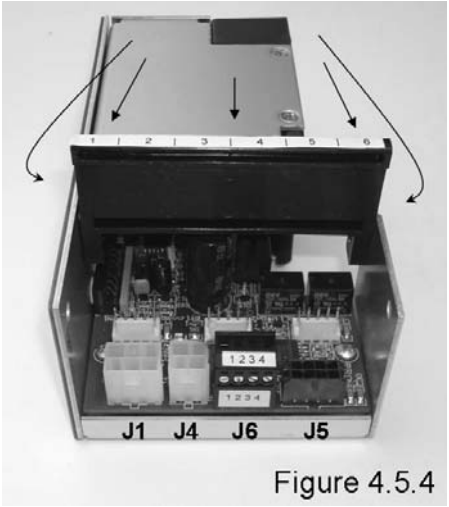


Figure 4.5.4

7. Re-plug cables to Control Module remove in step 2 and PowerPause connector to PowerPause Modules.
8. Re-install Control Module into transfer switch.
    a. Line up Control Module to breaker bus stabs from where removed in step 1.
    b. Hold at 30° angle, push onto bus stabs
    c. Lower outside end flush with enclosure.
    d. Slide Control Module ½" towards enclosure outside edge, lock into place.
    e. Install (if required) circuit breaker opposite Control Module.
9. Route and dress wires in gutter of transfer switch enclosure.

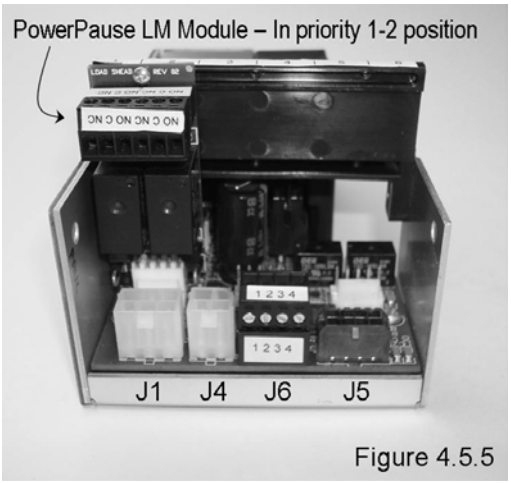


Figure 4.5.5

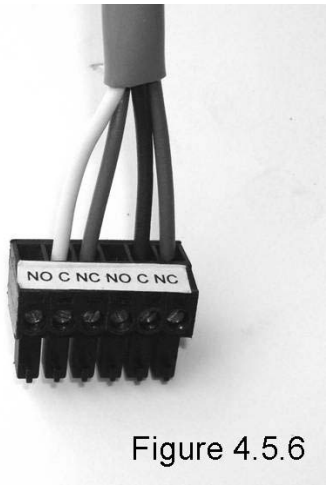


Figure 4.5.6

SECTION 5 – PROGRAMMING THE SYSTEM

5.1 Setting Generator Size

If PowerPause™ Load Management Modules are not installed, dial should be set to 25Kw. (Factory default setting is 25Kw).

NOTE: Setting dial to 25Kw disables all power management functions even if PowerPause™ Load Management Modules are installed.

If any PowerPause™ Load Management modules are installed and connected to manage loads, the generator size needs to be set for proper operation. Referring to your generator Installation and Owners Manuals, determine the net output of the generator (in Kw) accounting for fuel type, altitude, relative humidity and any other manufacture's suggested derating adjustments. If the net generator output exceeds 25Kw and PowerPause™ Load Management modules are installed and connected to manage loads, set GENERATOR SIZE to 22.5Kw.

To set the generator size on the OVATION™ Series ATS, locate the GENERATOR SIZE dial on the User Display and using the small straight blade screwdriver provided, rotate the dial arrow to the desired size, from 7 to 22.5Kw, rounding down to not exceed the derated generator output. For example, if you determine that the derated generator output is 19.5 Kw, set the GENERATOR SIZE dial to the next SMALLEST rating, 19Kw. See Figure 5.1.

Figure 5.1

CAUTION Improperly setting the GENERATOR SIZE can permanently damage the generator, transfer switch and loads connected to the transfer switch.

5.2 Setting Generator Exercise Schedule and Transfer Option

Each OVATION™ Series ATS has a generator exercise timer that will start and exercise the generator at 0, 7, 14, or 28 day intervals (factory setting is 7 days). The transfer switch can also be programmed to transfer loads to the generator during generator exercise (factory setting is NO load transfer). The exercise cycle will last for approximately 15 minutes. If a utility power failure occurs during the exercise cycle, the OVATION™ Series ATS will abort the generator exercise routine within 5 seconds, and transfer the load to generator power.

Table 5.2

DIAL NAME	MODEL NUMBER
101	ATS1001D ATS1001R
201	ATS2001D ATS2001R
202	ATS2002R

To set generator exercise schedule to a setting other than the 7 days default, determine the OVATION™ Series ATS model on the User Display where labeled "GENERATOR EXERCISE SCHEDULE" and use provided small, straight blade screwdriver to rotate the dial to the desired schedule. See Table 5.2 to determine model. Once set, the OVATION™ Series ATS will initiate a generator exercise 0, 7, 14 or 28 days from the exact time and day the dial is set. (See Figure 5.1) It is important to set the GENERATOR EXERCISE SCHEDULE at the exact day and time you want the generator exercise procedure to occur. For example, if you set the GENERATOR EXERCISE SCHEDULE dial to 14 on Thursday at 2:00 p.m., the OVATION™ ATS will initiate a generator exercise at 2:00 p.m. on a Thursday, 14 days later. To change the time and day the generator exercise occurs, press the RESET button at the desired time and day for the generator exercise to occur.

WARNING A "0" setting turns off ALL generator exercising initiated by the transfer switch. DO NOT use the "0" setting unless the generator has a built-in exerciser that will continue to exercise the generator.

If transferring the load during generator exercise is required, on the User Display, press TRANSFER, then immediately press the SERVICE switch. LED 5 flashes once when properly set. To set back to NO transfer during generator exercise, press TRANSFER, then immediately press the SERVICE switch. LED 5 flashes twice when properly reset.

5.3 User Interface Display LEDs

The User Display has five (5) indicator LEDs that display the status of the power sources and loads on the OVATION™ Series ATS:

LED	COLOR	LABEL	IF ON	IF SLOW FLASHING	IF FAST FLASHING
5	RED	GENERATOR LOAD	Load is powered by generator	GEN MAIN circuit breaker error	2+5=service battery
4	RED	GENERATOR POWER	Generator power is within voltage and frequency specifications	Generator power out of specification	Generator start/stop fault
3	YELLOW	LOAD	Power is energizing the Branch Circuit Breaker Bus	Power source transferring	Motor drive fault
2	GREEN	UTILITY POWER	Utility power is within voltage and frequency specifications	Utility power out of specification	2+5= battery voltage below 8VDC
1	GREEN	UTILITY LOAD	Load is powered by utility	UTILITY MAIN circuit breaker error	Bus not powered

Note: LEDs 1, 2 and 3 should be ON when loads are powered by the utility; LEDs 3, 4 and 5 should be ON when loads are powered by the generator.

5.4 User Interface Display/Control Module Functions

Each OVATION™ ATS User Interface Display has five (5) buttons that program and control the automatic transfer switch and control certain generator functions. NOTE: The generator may also have controls that program certain generator features that are NOT programmable from the OVATION™ ATS. See generator Installation and Owners Manual for further generator information.

Table 5.4

BUTTON	FUNCTION	DESCRIPTION OF FUNCTION
TRANSFER	1. Sets load transfer during generator exercise cycle	**TO BE USED BY QUALIFIED SERVICE PERSONNEL ONLY.** 1. Sets to transfer/not transfer load to generator during exercise. Factory setting is NO transfer during generator exercise. To transfer load during exercise, press TRANSFER, then within 5 seconds, press SERVICE; LED 5 flashes once if set successfully. To change back to NO transfer load during exercise, press TRANSFER, then within 5 seconds, press SERVICE; LED 5 flashes twice if set successfully. When TRANSFER is pressed after EXERCISE is pressed, load will transfer 1 time to generator then back to utility 5 minutes before end of exercise cycle.
	2. Sets generator start delay.	2. Sets generator start delay after utility power loss. Factory setting is 5 second delay. Press TRANSFER then within 5 seconds press EXERCISE; all LEDs flash once then LED 1 lights indicating 5 second start delay. Continue to press EXERCISE until desired LED lights. LED2=15min, LED3=30min, LED4=45min, LED5=60min delay. When the desired LED is lit, press TRANSFER to select delay and terminate function.
GENERATOR START/STOP	Starts and stops generator	To start generator, press once. To stop generator, press twice. Will override all generator and transfer switch time delays.
EXERCISE	Starts generator exercise cycle	During the exercise cycle, generator cranks and starts, the red GENERATOR POWER light comes on (if generator power is acceptable) and load will transfer to generator power if set to transfer (see TRANSFER above) then GENERATOR LOAD light comes on. Generator runs for 10 minutes (5 minutes under load if load is transferred) and stops. GENERATOR POWER and GENERATOR LOAD lights shut off. To cancel EXERCISE, press RESET once.
RESET	Reboots controller	Reboots controller (controller will retain programmed settings). Resets generator exercise clock. Performs one transfer cycle of UTILITY MAIN circuit breaker and terminates with UTILITY MAIN circuit breaker ON and GENERATOR MAIN circuit breaker in OFF position. Clears most faulty codes. Will not clear fault codes if fault cause is not corrected. During EXERCISE or SERVICE programs, overrides all time delays and terminates test.
SERVICE (Use sharp pencil or ball point pen to press Service Switch)	1. Tests actuator 2. Calibration utility 3. Simulates utility power loss	***TO BE USED BY QUALIFIED SERVICE PERSONNEL ONLY.*** 1. Hold +press EXERCISE: Cycles Actuator Module continuously – used to test mechanism. Press RESET to terminate test. 2. Required when certain electrical parts are replaced. Contact Gen/Tran for Calibration Procedure. See Section 8.4. 3. Press once: disconnects UTIL sense circuit to simulate utility power loss Press twice: reconnects UTIL sense circuit to simulate utility power restored. NOTE: after 1 press, UTIL sense circuit will auto reconnect after 5 minutes; SERVICE routine is terminated without further operator intervention.

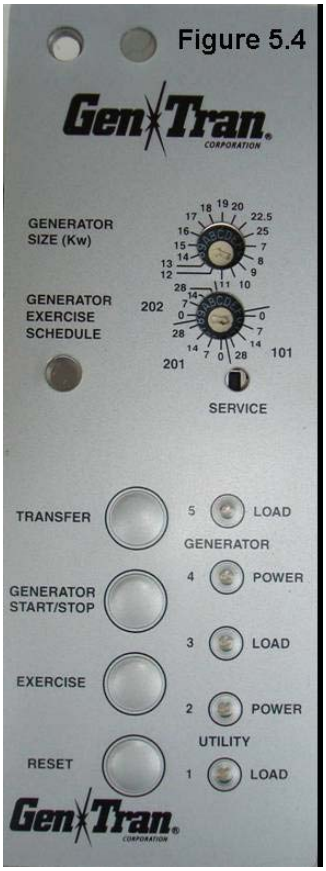


Figure 5.4

SECTION 6 –STARTUP AND TESTING

WARNING Voltages within the transfer switch enclosure present a shock hazard that can cause severe personal injury or death. Use extreme caution to avoid touching electrical contacts when the cabinet door is open or removed. Do not wear jewelry or loose clothing. Stand on a dry, non-conductive surface such as a rubber mat or wooden platform.

WARNING Improper operation of the generator presents multiple hazards that can cause severe personal injury or death. Observe all of the safety precautions in your generator manuals.

6.1 Preliminary Checks

1. Inspect the OVATION™ transfer switch for the following:
    - No loose or unconnected wires. Verify torques of all electrical connections.
    - No tools or parts left inside cabinet.
    - No debris inside cabinet. Use vacuum to clean out if present.
2. Verify that the OVATION™ transfer switch, generator and electrical power system of the house or building are compatible by reviewing all equipment rating labels and wiring diagrams. Verify correct generator operation and voltage outputs.

6.2 Energizing the Transfer Switch

CAUTION Severe equipment and property damage can occur if system is not energized at proper voltage. Do not energize equipment if generator voltage does not match equipment rating labels.

1. Set to ON the UTILITY MAIN circuit breaker and all other breakers in the transfer switch and load center.
2. Use a voltmeter to measure utility-to-utility and utility-to-neutral voltages across the normal utility terminals to ensure utility voltage is correct.
3. Use voltmeter to measure at least 13VDC from PIN 1 to PIN 2 on controller module.
4. Set generator main circuit breaker on Generator to ON.
5. Set generator main system switch/key to ON.
6. Set generator AUTO/MANUAL/OFF switch to AUTO.
7. Press SERVICE button. Generator start sequence will begin and runs for 5 minutes.

6.3 Testing the Transfer Switch

1. Turn OFF the service equipment disconnect in the transfer switch or feeding the transfer switch. This will simulate a utility power interruption.
2. After a 5 second delay, the OVATION™ transfer switch will attempt to start the generator. Use a digital volt meter to verify generator voltage at GENERATOR MAIN circuit breaker lugs. Verify the following:
    a. UTILITY POWER LED 2 starts flashing.
    b. UTILITY LOAD LED 1 turns off.
    c. LOAD LED 3 flashes while the actuator is moving.
    d. GENERATOR POWER LED 4 lights.
    e. GENERATOR LOAD LED 5 lights.
3. Turn ON service disconnect that was turned OFF in Step 1 above. UTILITY POWER LED light stops flashing.
4. After a one-minute delay, the OVATION™ transfer switch will transfer loads back to utility power (UTILITY LOAD lights, GENERATOR LOAD LED turns off, cool down and shut down generator (GENERATOR POWER LED turns off). Testing is now complete.

6.4 Programming the PowerPause™ Load Management Modules (if installed)

PowerPause™ Load Management Modules require programming when first installed, added, deleted or moved, when the generator is replaced, when load management priorities change and when the power requirements of the connected managed loads change (i.e. replacing an A/C compressor with a smaller, larger or more efficient unit).

1. Prior to programming PowerPause™ Load Management Modules, complete the following:
    a. Steps 4.5 and 5.1. Programming mode will not start unless PowerPause™ Load Management Modules are installed.
    b. Turn OFF all branch circuit breakers in the transfer switch (or sub-panel powered by transfer switch) except for branch circuit breakers powering managed loads. If multiple branch circuit breakers are required to power the managed load

(i.e. air conditioning compressor and air handler fan), turn ON all branch circuit breakers for managed load. For installer safety, 1 lighting circuit may be left ON to illuminate the transfer switch installation and/or egress areas.

c. Turn ON all appliances managed by a PowerPause™ Load Management Module. For air conditioning systems, set thermostat to COOL and AUTO and low enough to close the 24VAC thermostat control circuit. For electric hot water heaters, turn UP the thermostat to keep the heating elements on.

3. Enter PowerPause™ Load Management Module *learning* mode by pressing and holding down the SERVICE and RESET button until all LEDs flash in numeric sequence. Release SERVICE and RESET buttons. If no Load Management Modules are detected, the programming mode is terminated and the transfer switch resumes normal operation. NOTE: Exit *learning* mode at any time by pressing RESET. See Figure 5.1.

   CAUTION All PowerPause™ Load Management Module programmed values are erased and reset to zero (0) when entering *learning* mode. Exiting or terminating *learning* mode before values more than zero (0) have been stored will disable PowerPause™ Load Management Module operation.

4. Generator will start, run for 15 seconds, stabilize output and transfer loads to generator power. The controller will automatically detect each PowerPause™ Load Management Module installed and power off all managed loads.
5. LEDs1-5 will flash for 10 seconds. If you prefer to have the controller automatically *learn* the size of each managed load, continue to step 6. NOTE: Entering the automatic *learning* mode will erase all previously *learned* loads from the controller memory. If you need to change 1 or 2 loads, enter the manual *learning* mode instead. To enter the manual *learning* mode, press TRANSFER while LEDs 1-5 are flashing and proceed to Step 10. NOTE: If LED flashing does not occur, reduce the safety lighting loads in Step 6.4.1.b until LEDs 1-5 start flashing.
6. LED 1 (GREEN) will begin slow flashing indicating the controller automatically detected a Load Management Module in position 1-2 and is ready to learn the size of priority 1 load. LED 1 will continue slow flashing for 20 seconds while Load 1 turns on and runs. At the end of 20 seconds, the load will turn off.
7. If the load 1 *learning* is successful, LED 1 will turn on for 5 seconds. If load 1 *learning* is not successful (load exceeded 85% of generator capacity or no load detected), LED 1 will fast flash for 5 seconds and the load is disqualified and not allowed to operate on generator power. Note the LED fast flash condition.
8. Steps 5 -7 will be automatically repeated for each detected load. LED 1 & 5 will flash for priority 6 load.
9. When all detected loads have been *learned,* LEDs 1-5 turn on. Press RESET to terminate the automatic programming mode. Automatic load *learning* is now complete. Go to Step 10 if disqualified loads from Step 7 require manual *learning*, otherwise go to 6.5.
10. Use the manual *learning* mode when the automatic *learning* in Steps 6-9 does not work or when existing learned loads require changing. Refer to step 5 to enter manual learning mode.
11. The LED corresponding to the first installed load module will begin flashing. Press TRANSFER to scroll to the desired load to *learn*.
12. Press EXERCISE to start load *learning* for the selected load. The LED will light for 5 seconds, then slow flash for 20 seconds. If the load *learning* is successful, the LED will turn on. If the load *learning* is not successful (load exceeds 85% of generator capacity or no load detected), the LED will fast flash and the load is disqualified and not allowed to operate on generator power. Note the LED fast flash condition. Press TRANSFER to scroll to the next load to learn & repeat Steps 12 as required. Press RESET to exit manual *learning* mode.
13. If programming PowerPause Load Management Modules is still not successful, contact GenTran for assistance at 1-888-GEN-TRAN.

6.5 Re-Installing Covers and Labeling Circuits

1) Determine where branch circuit breakers have been installed and remove the required dead-front twist-outs. All dead-front openings must be covered with circuit breakers or with filler plates. Order GenTran PN 51022 for additional filler plates.
2) Install dead front cover on enclosure with screws provided. For Models 1001 and 2001, any excess openings between circuit breakers and twist out openings must be corrected by adjusting the two screws on the inside of door or adjusting the depth of the box.
3) Apply circuit directory labels next to circuit breakers and identify each branch circuit. If the transfer switch is used as Service Equipment, apply "SERVICE DISCONNECT" label next to the UTILITY MAIN circuit breaker. UTILITY MAIN and GENERATOR MAIN are already labeled.

6.6 Generator Battery Monitoring

Generator battery failure is the most common cause for generator startup failure. The OVATION™ Series ATS monitors the battery output during generator startup and if below minimum specifications, will continuously flash LED 2 and 5 alerting the user to further test and service the generator battery. NOTE: Generator may not start if LEDs 2 and 5 are flashing.

SECTION 7 – TROUBLESHOOTING

Use the following troubleshooting guide to help diagnose transfer switch problems. Thoroughly inspection transfer switch wiring and cable connections. Correct wiring problems before performing any tests or replacing any components.

7.1 Basic Troubleshooting

In case of generator failure, check the following BEFORE calling your installer:

1. Check generator fuel level and refill tank, if necessary (gasoline or diesel gensets).
2. Check generator oil level alert and refill reservoir if necessary.
3. Check generator battery for low or dead cell.
4. Check all power cord and cable connections.
5. Generator main circuit breaker (on generator) should be in the ON position and run switch should be in AUTO position.

7.2 Troubleshooting Guide

PROBLEM	POSSIBLE CAUSE	SOLUTION	SECTION
A. Power Outage occurs but genset does not start	1. No power to transfer switch	1. Check ATS connection to battery	4.3, 4.4
	2. Genset is in MANUAL or OFF mode	2. Set genset to AUTO mode	Genset Owners Manual
	3. Genset does not crank	3a. Check genset battery and connections 3b. Start genset in manual mode. If starts, check low voltage cable from switch to genset.	
	4. Genset cranks but does not start (Genset cranks 3 x for 10 sec each)	4.Check genset fuel, spark plugs, refer to genset manual	4.3
	5. No start signal from transfer switch	5. Check voltage between CRANK and BATT (-) or (if CRANK/BATT(-) are not used) between ON/OFF and BATT(-) while switch is attempting to crank genset. Should be 10.5 to 14 Volts DC.	
	6. Control Module may be defective	6. If defective, replace Control Module.	8.4
B. Genset runs but switch will not transfer any or all loads	1. Genset main circuit breaker tripped	1. Reset circuit breaker on genset	Genset Owners Manual
	2. Genset voltage out of range	2. Check genset voltage. Switch will not transfer loads unless genset voltage is 204-270VAC. Correct genset voltage if out of range	
	3. Genset frequency out of range	3. Check genset frequency. Switch will not transfer loads unless genset frequency is 57-63Hz. Correct genset frequency if out of range	
	4. Utility power restored, genset power not required.	4. Switch will temporarily leave loads on generator. Wait for switch to complete normal cool down cycle (up 6 minutes)	
	5. Total loads exceed 85% of genset continuous rating	5. Not all loads may be powered all of the time by genset. PowerPause™ Modules will cycle some loads and this is normal. If all loads need to run all of the time, remove some loads from switch or connect switch to larger genset.	4.5, 6.4
	6. Largest load exceeds genset continuous rating	6. Check continuous wattage of largest load; largest load must not exceed genset continuous rating. If exceeds, remove load from switch or connect switch to larger genset and reprogram switch.	4.5, 6.4
C. Transfer switch does not retransfer loads when utility power is restored	1. Utility voltage out of range	1. Check utility voltage. Switch will not retransfer loads unless utility voltage is 204-270VAC. Wait for voltage to stabilize.	
	2. Utility frequency out of range	2. Check utility frequency. Switch will not retransfer loads unless utility frequency is 57-63Hz. Wait for frequency to stabilize.	
	3. Service disconnect is OFF	3. Turn ON utility service disconnect	
D. Genset continues to run after retransfer of loads to utility	1. Genset not accepting shutdown command	1. Check genset mode, set to AUTO.	Genset Owners Manual
	2. Genset cool down cycle running	2. Wait 5 minutes after transfer to utility for cool down cycle to complete.	
	3. Genset ON signal from switch is ON after cool down cycle	3. Check voltage between ON and BATT (-). If over 0 Volts DC, controller module is defective, replace.	4.3

E. Genset does not exercise, or exercises, but does not transfer loads	1. Exercise programming incorrect 2.Genset exercise not frequent enough 3. Genset is in MANUAL mode 4. Genset cranks but does not start 5. Genset does not crank 6. No start signal from transfer switch 7. Controller module may be defective 8. TRANSFER during exercise set to NO	1. Check GENERATOR EXERCISE SCHEDULE 2. Reduce days between exercise 3. Set genset to AUTO mode 4. Check genset fuel, spark plugs, refer to genset manual 5a. Start genset in manual mode. If starts, check low voltage cable from transfer switch to genset. 5b. Check genset battery and connections 6. Check voltage between CRANK and BATT (-) or (if CRANK/BATT(-) are not used) between ON and BATT(-) while switch is attempting to crank genset. Should be 10.5 to 14 Volts DC. 7. If incorrect voltage replace controller module 8. Set to TRANSFER loads during exercise	5.2 Genset Owners Manual 8.4 5.4
F. Genset starts when utility power is on	1. Generator is in exercise mode. 2. Utility voltage out of range 3. Utility frequency out of range 4. Service disconnect UTIL circuit breaker powering ATS is OFF 5. GENERATOR START DELAY may be too short	1. Allow exercise cycle to complete. 2. Check utility voltage. Switch starts genset when utility voltage is <190 or >280VAC. Wait for utility voltage to stabilize. 3. Check utility frequency. Switch starts genset when utility frequency is <54 or >66Hz. Wait for utility frequency to stabilize 4. Turn ON service disconnect UTIL breaker 5. Can be lengthen (poor utility power quality may cause the genset to start intermittently even though there is no power outage)	5.2 5.4
G. Battery fails to charge, over charges or under charges *LED 2 & 5 are continuously flashing*	1. Battery may be defective 2. Incorrect battery charger output	1. Check battery voltage; a reading of 8 VDC or less after 24 hours of charging indicates that battery needs replacement 2. Check battery charger in genset, replace. Battery charger output should be at 13-14VDC.	Genset Owners Manual
H. Loads turn off and on when genset is running	1. PowerPause™ Load Management program is operating 2. Loads connected to transfer switch exceed genset capacity	1a. Verify the correct loads are turning off/on 1b. Rewire different loads to PowerPause™ Load Management module 1c. Temporarily do not use certain appliances 2a. Reduce connected load 2b. Connect switch to larger genset and reprogram PowerPause module.	4.5,6.4
I. User Interface Display (UID) is not responding to button commands	1. Computer controlling switch is locked up 2. Control Module may be defective	1. Reset computer by pressing RESET button on controller module. (Note: User custom programming is retained in ROM) 2. Replace Control Module. Call GenTran.	5.4 8.4
J. There is a long delay between utility power loss & genset starting	1. Generator start delay is set too long 2. Critical appliances shut off	1. Change to desired delay. 2. Install an Uninterruptible Power System (UPS) on critical appliances to ensure continuous power.	5.4
K. Managed loads do not turn on	1. GENERATOR SIZE set to 25Kw 2. PowerPause™ Load Modules not installed or properly programmed 3. Load is disqualified from operating	1. Change GENERATOR SIZE to <25Kw. 2. Install and program for managed loads. 3. Reduce load to < 85% of generator capacity	5.1 4.5, 6.4 6.4
L. Generator shuts stalls/shuts down	1. No fuel 2. Generator overloaded 3. Generator failure	1. Check fuel supply, correct 2. Reduce load(s) on generator 3. See generator Installation/Owner's Manual	
M. Control Module LEDs not ON	1. No 12VDC power to Control Module	1. Check low voltage cable connection between Control Module and generator	4.3

SECTION 8 – MAINTENANCE AND SERVICE

8.1 Maintenance

To ensure that the generator will always be ready when required, it is important to start and exercise the generator regularly and keep the fuel tank filled with *fresh* fuel IF GASOLINE OR DIESEL. From the factory, the OVATION™ transfer switch will automatically perform the exercise program at least once every 7 days (installer-programmable from 0 to 28 days). It is not necessary to turn off any circuits in the load center when supplying generator power to the system, even when the utility power is operating normally. The system prevents back feeding generator power to the utility and, conversely, utility power to the generator.

There are no user-serviceable parts inside the OVATION™ Series ATS. For service, please contact your installer or Gen/Tran at 1-888-GEN-TRAN. NOTE: Gen/Tran warranty does NOT cover products that have been subject to misuse or unauthorized repair.

NOTE TO INSTALLER:
Please provide your company name and phone number inside the front door so that the customer will be able to contact you for service-related issues.

8.2 Factory Default Settings

Factory default settings at time of shipment are:

- GENERATOR SIZE: 25Kw
- GENERATOR EXERCISE SCHEDULE: 7 days
- TRANSFER LOAD DURING EXERCISE: NO
- GENERATOR START DELAY AFTER UTILITY LOSS: 5 seconds

8.3 Product Registration

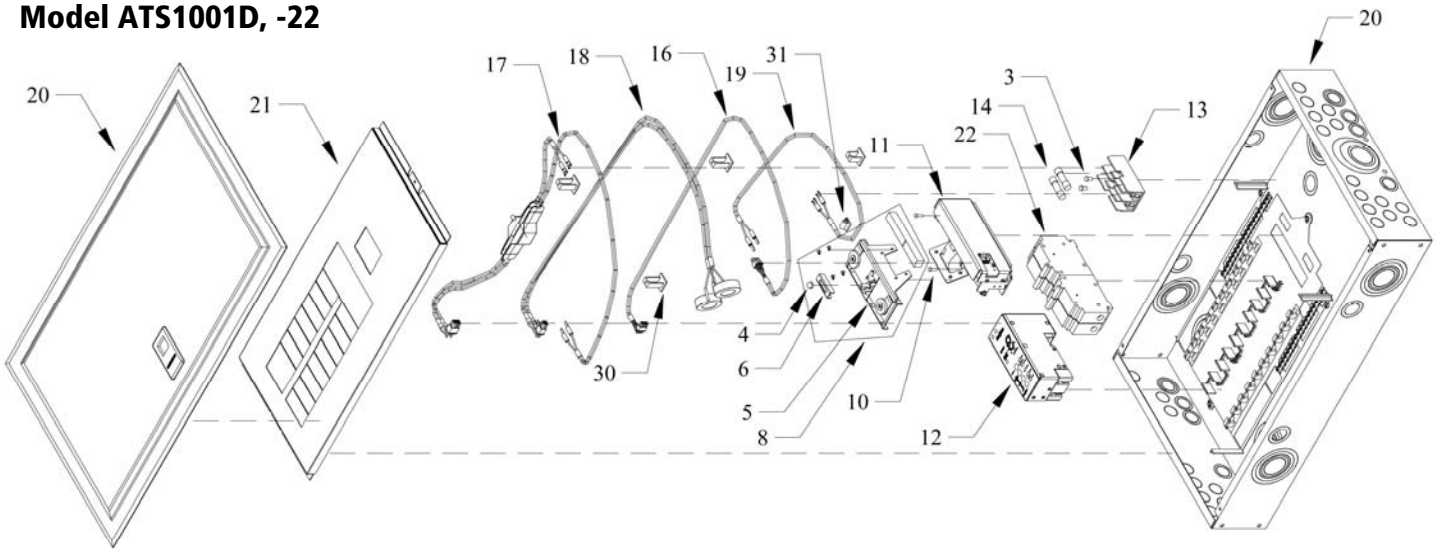
Complete enclosed Product Registration card and mail to GenTran to ensure you receive notification of product updates/bulletins.

8.4 Exploded Views and Replacement Parts List

WARNING Incorrect parts replacement and/or service can result in severe personal injury, death and/or equipment damage. Use only recommended GenTran service parts. Service personnel must be trained to perform electrical and mechanical service.

NOTE: When electrical parts marked with * are replaced, an ATS calibration procedure must be performed. Contact Gen/Tran for System Calibration Instructions, PN 530005.

Model ATS1001D, -22



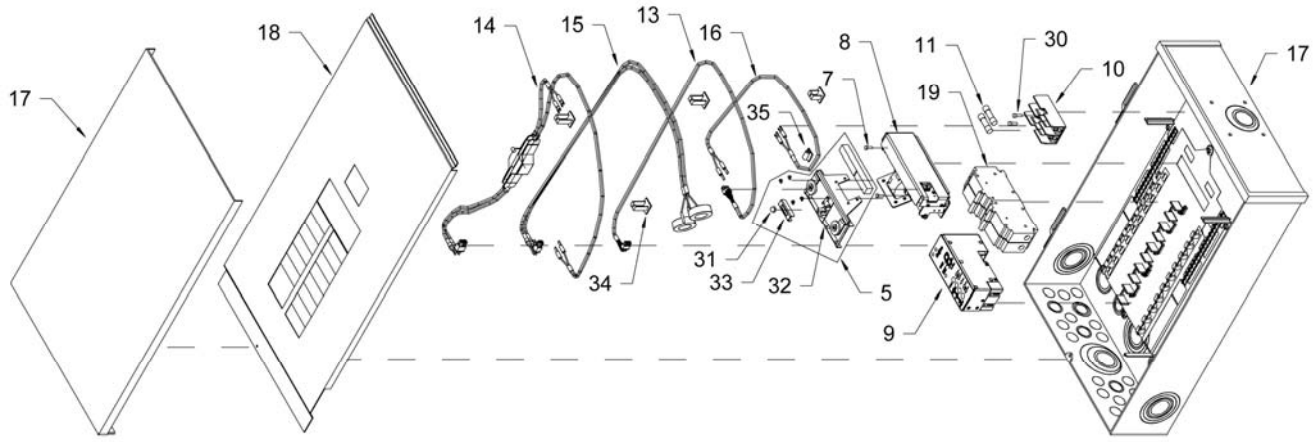
MODEL ATS1001D, -22 *If your model ends in -22, order replacement ITEM ending in -22 if shown.*

ITEM	QTY	PART#	DESCRIPTION	TYPE
2	2	17729	End pad, polystyrene, 7/18/1.375, not shown	A
3	2	32403	Screw, 8-32x.3/8, Hex, Type F, steel, zinc	C
4	1	37012	Nut, Nylock, 8-32, zinc plated	C
5	1	50104	Clip, interlock	B
6	1	50131	Interlock handle, circuit breaker	B
8	1	50480	Actuator/Interlock Assm 100/100	B
9	1	50486	ATS Ovation™ Specification Sheet, not shown	D
10	2	50487	Screw, 8-32x1 PFL TAPT ST ZP	C
11	1	50488	Motor Assembly	B
12	1	50489 *	Control Module Assembly	B
13	1	50497	Fuse Block, 20A, 600VAC, 10K AIC	B
13-22	1	50506	Fuse Block, 20A, 600VAC, 100K AIC	B
14	2	50498	Fuse 5A, 600VAC, 10K AIC	B
14-22	2	50507	Fuse 5A, 600VAC, 100K AIC	B
15	1	50502	Box, 21 3/8x7x26 7/8 PF-FOL	A
16	1	50580	Cable, motor to controller, 48", 22AWG	B
17	1	50585*	Cable, AC voltage sense, 18AWG w/xformer	B
18	1	50590	Cable, current sense, 18AWG	B
19	1	50595	Cable, fuse block, 18AWG	B
20	1	50598	Loadcenter, Siemens, 20/20, NEMA 1	B
21	1	50610	Deadfront, 1001D, modified, Siemens, 20/20	B
22	2	51008	Circuit breaker 100A, 2 pole, 120/240V, 10K AIC	B
22-22	1	510081	Circuit breaker 100A, 2 pole, 120/240V, 22K AIC	B
23	1	51037	Warranty Reply Card/Product Registration, not shown	A
24	1	51147	Label, GENTRAN, silver/green (340), not shown	A
25	1	72006	Label, "Gen, Util", not shown	A
26	2	72009	Label, Serial Number, not shown	A
27	1	72010	Label, SN, controller, not shown	A
28	1	500502	DO NOT RETURN card, not shown	A
29	1	530001	Manual: Installation, Operating and Maintenance, not shown	D
30	4	50509	Cable clip, Nylon 66, natural, large	B
31	1	50511	Cable clip, Nylon 66, natural, small	B
32	1	3700091-01	Label, product, ATS Ovation™, 1001D, 10K AIC, not shown	A
32-22	1	3700091-06	Label, product, ATS Ovation™, 1001D, 22K AIC, not shown	A
33	1	50508	Screwdriver, mini, .100 straight blade, GT logo, not shown	A
34	2	S7956W	Label, date code, .4375x.75, white, not shown	A

TYPE:
A = Non-Field Replaceable Item (Call Factory)
B = Field Replaceable Item (Call Factory to order parts)
C = Available at local hardware store or home center
D = Download from www.-gen-tran.com website

*** NOTE: When electrical parts marked with * are replaced, an ATS calibration procedure must be performed. Contact Gen/Tran for System Calibration Instructions, PN 530005.**

Model ATS1001R, -22



MODEL ATS1001R, -22 *If your model ends in -22, order replacement ITEM ending in -22 if shown.*

ITEM	QTY	PART#	DESCRIPTION	TYPE
1	4	17728	Corner pad, polystyrene, 5.75x5.75x6.875, not shown	A
2	1	50508	Screwdriver, Mini, .100 straight blade, GT logo, not shown	A
3	2	S7956W	Label, Date code, .4375x.75, white, not shown	A
5	1	50480	Actuator/Interlock Assm 100/100	B
6	1	50486	ATS Ovation™ Specification Sheet, not shown	D
7	2	50487	Screw, 8-32x1 PFL TAPT ST ZP	C
8	1	50488	Motor Assembly	B
9	1	50489*	Control Module Assembly	B
10	1	50497	Fuse Block, 20A, 600VAC, 10K AIC	B
10-22	1	50506	Fuse Block, 20A, 600VAC, 10K AIC	B
11	2	50498	Fuse 5A, 600VAC, 10K AIC	B
12	1	50501	Box, 16.5x7x25.5PF-FOL	A
13	1	50580	Cable, motor to Control Module, 48", 22AWG	B
14	1	50585*	Cable, AC voltage sense, 18AWG w/xformer	B
15	1	50590	Cable, current sense, 18AWG	B
16	1	50595	Cable, fuse block, 18AWG	B
17	1	50599	Loadcenter, Siemens, 16/24, NEMA 3R	B
18	1	50611	Deadfront, 1001R, modified, 16/24	B
19	2	51008	Circuit breaker 100A, 2 pole, 120/240V, 10K AIC	B
19-22	1	510081	Circuit breaker 100A, 2 pole, 120/240V, 22K AIC	B
20	1	51037	Warranty reply card, not shown	A
21	1	51080	Options Order Sheet, not shown	A
22	1	51147	Label, GENTRAN, silver/green (340), not shown	A
23	1	72005	Label, "Gen, Util", not shown	A
24	2	72009	Label, SN, not shown	A
25	1	72010	Label, SN, Control Module, not shown	A
26	1	500502	DO NOT RETURN card, not shown	A
27	1	510491	Label, 2" diam, clear, not shown	A
29	1	530001	Manual: Installation, Operating and Maintenance, not shown	D
30	2	32403	Screw, 8-32x.3/8, Hex, Type F, steel, zinc	C
31	1	37012	Nut, Nylock, 8-32, zinc plated	C
32	1	50104	Clip, interlock	B
33	1	50131	Interlock handle, circuit breaker	B
34	4	50509	Cable clip, Nylon 66, natural, large	B
35	1	50511	Cable clip, Nylon 66, natural, small	B
36	1	3700091-02	Label, product, ATS1001R, 10K AIC, not shown	A
36-22	1	3700091-07	Label, product, ATS1001R, 22K AIC, not shown	A

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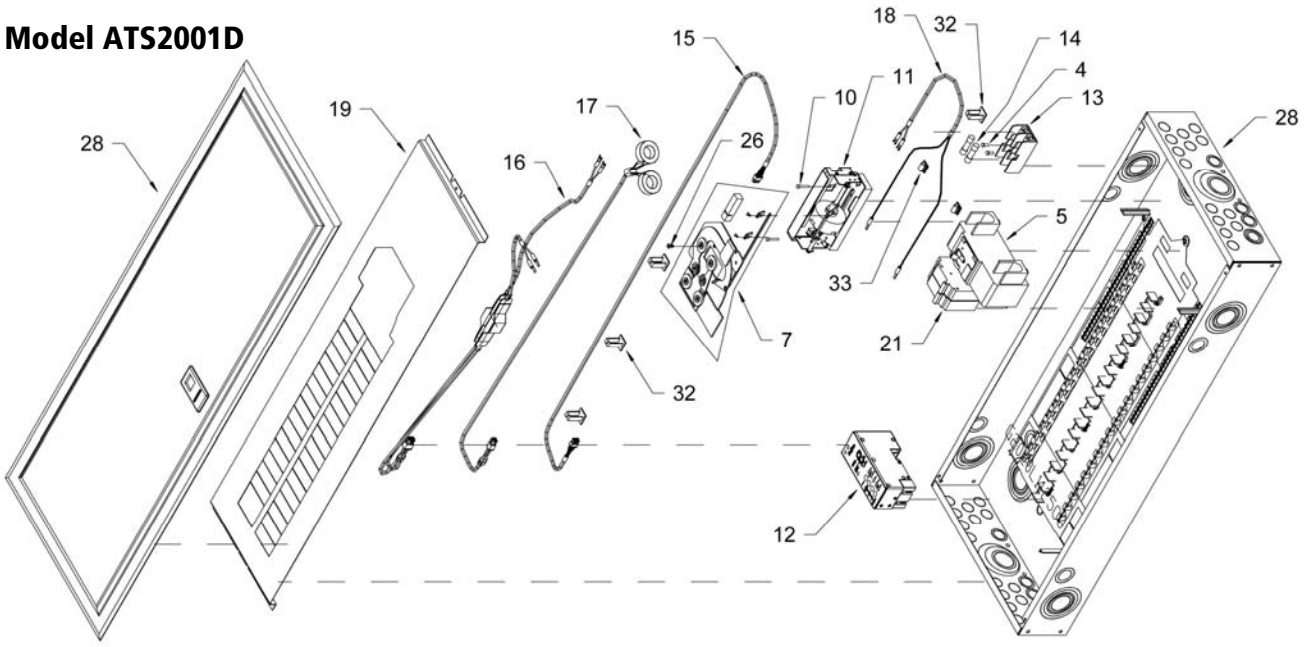
D = Download from www.-gen-tran.com website

*** NOTE: When electrical parts marked with * are replaced, an ATS calibration procedure must be performed. Contact Gen/Tran for System Calibration Instructions, PN 530005.**

Model ATS2001D



ITEM	QTY	PART.	DESCRIPTION	SOURCE
1	1	17727	Carton, 18.25x7.125x42.687, 5PF-FOL, not shown	A
2	4	27484	Hollow Corner pad, polystyrene, 5.75x5.75x6.8, not shown	A
3	2	32400	Screw, 6-32x.5, Hex, Type F, steel, zinc	C
4	2	32403	Screw, 8-32x.3/8, Hex, Type F, steel, zinc	C
5	1	50232	Circuit breaker 200A, 2 pole, MBK, 10K AIC	B
6	1	50477	Label, carton, ATS Ovation™, 2001D, not shown	A
7	1	50481	Actuator/Interlock Assm 200/125	B
8	1	50484	Splatter Shield (14 3/8" x 39") , not shown	A
9	1	50486	ATS Ovation™ Specification Sheet, not shown	D
10	2	50487	Screw, 8-32x1 PFL TAPT ST ZP	C
11	1	50488	Motor Assembly	B
12	1	50489*	Control Module Assembly	B
13	1	50506	Fuse Block, 20A, 600VAC, 100K AIC	B
14	2	50507	Fuse 5A, 600VAC, 100K AIC	B
15	1	50580	Cable, motor to controller, 48", 22AWG	B
16	1	50586*	Cable, AC voltage sense, 18AWG w/xformer	B
17	1	50590	Cable, current sense, 18AWG	B
18	1	50594	Cable, fuse block, 18AWG	B
19	1	50612	Deadfront, 2001D,modified, loadcenter 40/40	B
20	1	51037	Warranty reply card, not shown	A
21	1	51102	Circuit breaker 125A, 2 pole, 120/240V	B
22	1	51147	Label, GENTRAN, silver/green (340), not shown	A
23	1	72006	Label, "Gen, Util", not shown	A
24	2	72009	Label, SN, not shown	A
25	1	72010	Label, SN, controller, not shown	A
26	1	72915	Screw, 8-32x.5, FLAT TH, SS, SMS	C
27	1	500502	DO NOT RETURN card, not shown	A
28	1	502300	Loadcenter, Siemens, 40/40, NEMA 1	B
29	1	530001	Manual: Installation, Operating and Maintenance, not shown	D
30	1	3700091-03	Label, product, ATS Ovation™, 2001D, 10K AIC, not shown	A
31	2	S7956W	Label, date code, .4375x.75, white, not shown	A
32	4	50509	Cable clip, Nylon 66, natural, large	B
33	2	50511	Cable clip, Nylon 66, natural, small	B
34	1	50508	Screwdriver, mini, .100 straight blade, GT logo, not shown	A

TYPE:

A = Non-Field Replaceable Item (Call Factory)

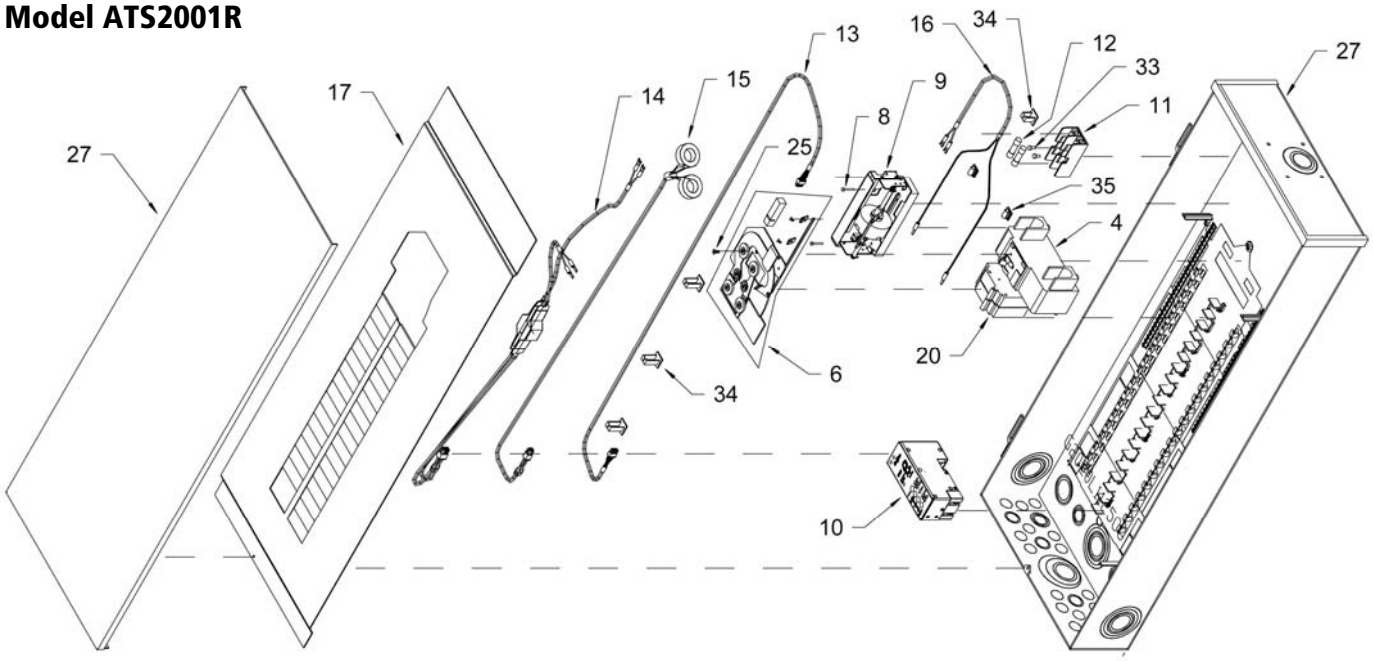
B = Field Replaceable Item (Call Factory to order parts)

C = Available at local hardware store or home center

D = Download from www.-gen-tran.com website

*** NOTE: When electrical parts marked with * are replaced, an ATS calibration procedure must be performed. Contact Gen/Tran for System Calibration Instructions, PN 530005.**

Model ATS2001R

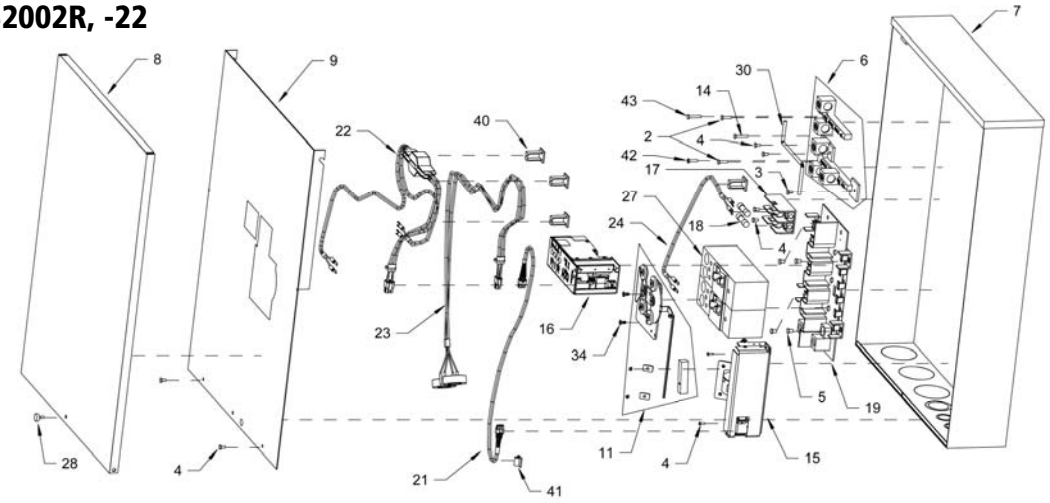


ITEM	QTY	PART NO.	DESCRIPTION	SOURCE
1	1	17727	Carton, 18.25x7.125x42.687, 5PF-FOL, not shown	A
2	4	17728	Corner pad, polystyrene, 5.75x5.75x6.875, not shown	A
3	1	17729	End pad, polystyrene,7/18/1.375, not shown	A
4	1	50232	Circuit breaker 200A, 2 pole, MBK, 22K AIC	B
5	1	50478	Label, carton, ATS Ovation™, 2001R, not shown	A
6	1	50481	Actuator/Interlock Assm 200/125	B
7	1	50486	ATS Ovation™ Specification Sheet, not shown	D
8	2	50487	Screw, 8-32x1 PFL TAPT ST ZP	C
9	1	50488	Motor Assembly	B
10	1	50489*	Controller Module Assembly	B
11	1	50506	Fuse Block, 20A, 600VAC, 100K AIC	B
12	2	50507	Fuse 5A, 600VAC, 100K AIC	B
13	1	50580	Cable, motor to controller, 48", 22AWG	B
14	1	50586*	Cable, AC voltage sense, 18AWG w/xformer	B
15	1	50590	Cable, current sense, 18AWG	B
16	1	50594	Cable, fuse block, 18AWG	B
17	1	50613	Deadfront, 2001R, modified, Loadcenter, 40/40	B
18	1	51037	Warranty reply card, not shown	A
19	1	51080	Options Order Sheet, not shown	A
20	1	51102	Circuit breaker 125A, 2 pole, 120/240V, 10K AIC	B
21	1	51147	Label, GENTRAN, silver/green (340) , not shown	A
22	1	72006	Label, "Gen, Util", not shown	A
23	2	72009	Label, SN, not shown	A
24	1	72010	Label, SN, controller, not shown	A
25	1	72915	Screw, 8-32x.5, FLAT TH, SS, SMS	C
26	1	500502	DO NOT RETURN card, not shown	A
27	1	502310	Loadcenter, Siemens, 40/40, NEMA 3R	B
28	1	510491	Label, 2" diam, clear, not shown	A
29	1	530001	Manual: Installation, Operating and Maintenance, not shown	D
30	1	3700091-04	Label, product, ATS Ovation, 2001R, 22K AIC, not shown	A
32	2	S7956W	Label, date code, .4375x.75, white, not shown	A
33	2	32403	Screw, 8-32x.3/8, Hex, Type F, steel, zinc	C
34	4	50509	Cable clip, Nylon 66, natural, large	B
35	2	50511	Cable clip, Nylon 66, natural, small	B
36	1	50508	Screwdriver, mini, .100 straight blade, GT logo, not shown	A

TYPE:
A = Non-Field Replaceable Item (Call Factory)
B = Field Replaceable Item (Call Factory to order parts)
C = Available at local hardware store or home center
D = Download from www.-gen-tran.com website

*** NOTE: When electrical parts marked with * are replaced, an ATS calibration procedure must be performed. Contact Gen/Tran for System Calibration Instructions, PN 530005.**

Model ATS2002R, -22



ITEM	QTY	PART	DESCRIPTION	SOURCE
1	4	17728	Corner pad, polystyrene, 5.75x5.75x6.87, not shown	A
2	2	29880	Screw, 10-32x.5, RHPS, steel, zinc	C
3	1	32390	Screw, 8-32x.75, Hex, thread cutting, steel, zinc	C
4	8	32403	Screw, 8-32x.3/8, Hex, Type F, steel, zinc	C
5	4	32438	Screw, 10-32x.375, Type 23, Hex, steel, zinc	C
6	1	50512	Neutral/ground block assembly	B
7	1	50401	Enclosure, 200A ATS, 18x24, AL, NEMA 3R	B
8	1	50402	Cover, 200A ATS, NEMA 3R	B
9	1	50404	Cover, dead front, 200A ATS	B
10	1	50479	Label, carton, ATS Ovation™, 2002R, not shown	A
10-22	1	50479-22	Label, carton, ATS Ovation™, 2002R-22, not shown	A
11	1	50482	Actuator/Interlock Assm 200/200	B
12	1	50485	Label, circuit marking, not shown	A
13	1	50486	ATS Ovation™ Specification Sheet, not shown	D
14	1	50487	Screw, 8-32x1 PFL TAPT ST ZP	C
15	1	50488	Motor Assembly	B
16	1	50489*	Control Module Assembly	B
17	1	50497	Fuse Block, 20A, 600VAC, 10K AIC	B
17-22	1	50506	Fuse Block, 20A, 600VAC, 100K AIC	B
18	2	50498	Fuse 5A, 600VAC, 10K AIC	B
18-22	2	50507	Fuse 5A, 600VAC, 100K AIC	B
19	1	50500	Buss Assembly, 12 circuit, plastic, CU/TN	B
20	1	50502	Box, 21 3/8x7x26 7/8 PF-FOL, not shown	A
21	1	50582	Cable, motor to controller, 28" , 22AWG	B
22	1	50585*	Cable, AC voltage sense, 18AWG w/xformer	B
23	1	50590	Cable, current sense, 18AWG	B
24	1	50595	Cable, fuse block, 18AWG	B
25	1	51037	Warranty reply card, not shown	A
26	1	51080	Options Order Sheet, not shown	A
27	2	51101	Circuit breaker 200A, 2 pole, 120/240V, 10K AIC	B
27-22	1	511011	Circuit breaker 200A, 2 pole, 120/240V, 22K AIC	B
28	1	51121	Screw, Thumb grip, SS, 8-32x1.125"	B
29	1	51147	Label, GENTRAN, silver/green (340) , not shown	A
30	1	510950	Pigtail, neutral bond, 4AWG, green, 6"	B
31	1	72008	Label, "Gen, Util", ATS2002R, not shown	A
32	1	72009	Label, SN, not shown	A
33	1	72010	Label, SN, Control Module, not shown	A
34	2	72914	Screw, 8-32x.5, PTH, SS, SMS	C
35	1	500502	DO NOT RETURN card, not shown	A
36	1	510491	Label, 2" diam, clear, not shown	A
37	1	530001	Manual: Installation, Operating and Maintenance, not shown	D
38	1	3700091-05	Label, product, ATS Ovation™, 2002R, 10K AIC, not shown	A
38-22	1	3700091-11	Label, product, ATS Ovation™, 2002R, 22K AIC, not shown	A
39	2	S7956W	Label, date code, .4375x.75, white, not shown	A
40	4	50509	Cable clip, Nylon 66, natural, large	B
41	1	50511	Cable clip, Nylon 66, natural, small	B
42	1	41029	Rivet, AL, .1875 x .376-.500, large flange	C
43	1	27408	Screw, 8-32x.1.25, RHMS, steel, zinc	C
44	1	50508	Screwdriver, mini, .100 straight blade, GT logo, not shown	A

TYPE:

A = Non-Field Replaceable Item (Call Factory)
B = Field Replaceable Item (Call Factory to order parts)
C = Available at local hardware store or home center
D = Download from www.-gen-tran.com website

*** NOTE: When electrical parts marked with * are replaced, an ATS calibration procedure must be performed. Contact Gen/Tran for System Calibration Instructions, PN 530005.**

OPTIONAL ITEMS FOR YOUR OVATION™ ATS – AVAILABLE FROM GENTRAN CORPORATION:

PART NUMBER	DESCRIPTION
LSM	PowerPause™ Load Management Module Kit with Current sense cable For up to 2 x 240V circuits up to 50 amps (or 4 x 120V circuits)
PP30-1	PowerPause™ Relay Box, 30 Amp, 1 circuit, 240 VAC. Includes 1 relay
PP30-2	PowerPause™ Relay Box, 30 Amp, 2 circuits, 240 VAC. Includes 2 relays
PP50-1	PowerPause™ Relay Box, 50 Amp, 1 circuit, 240 VAC, Includes 1 relay
PP50-2	PowerPause™ Relay Box, 50 Amp, 2 circuits, 240 VAC, Includes 2 relays
ATSRK	Relay Kit. One provided with each Ovation™ ATS, additional may be required for connection to certain generators, including but not limited to select Honda® and Apache® generators.
510199	Surge Protector circuit breaker, 15A/15A, 120 VAC
510189	Surge Protector circuit breaker, 20A/20A, 120 VAC
2602A-12	GUEST Battery Charger, 2A/120VDC, Float, 150 Ah output

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