

AutoGen[®]
Automatic Transfer Switch
Model ATS-12000

OWNER'S MANUAL

Please read this manual in its entirety before installing your AutoGen[®] Automatic Transfer Switch. Retain this manual for future reference.

Congratulations on the purchase of your AutoGen[®] Automatic Transfer Switch!

YOUR AUTOGEN[®] AUTOMATIC TRANSFER SWITCH PROVIDES YOU WITH A WAY TO AUTOMATICALLY START AND RUN YOUR ELECTRIC START GENERATOR IN CASE OF POWER FAILURE. IT TRANSFERS GENERATOR POWER TO SELECTED CIRCUITS THROUGH AN EXISTING OR NEWLY INSTALLED MANUAL TRANSFER SWITCH (OR EMERGENCY SUB-PANEL) AND PREVENTS BACKFEED WHEN THE POWER IS RESTORED.

YOUR AUTOGEN[®] AUTOMATIC TRANSFER SWITCH IS EASY FOR A LICENSED ELECTRICIAN OR QUALIFIED PROFESSIONAL TO INSTALL AND IT WILL WORK WITH MOST 120/240 VOLT AC SINGLE PHASE ELECTRIC START GENERATORS.

Manufactured by

Connecticut  **Electric**
Quality Electrical Products Since 1906 & SWITCH MFG. CO.



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INTRODUCTION

AutoGen® Automatic Transfer Switch consists of two units:

1) the Automatic Transfer Switch (ATS) which you will install next to your service entrance panel and your manual transfer switch (or sub-panel), and,

(2) the Engine Control which you will mount on (or near) your generator to control its starting and running.

Your AutoGen Automatic Transfer Switch (ATS) supplies your manual transfer switch (or your emergency sub-panel) with power from one of two sources - utility or generator.

The ATS monitors power from the utility and when that power fails, the ATS communicates to the Engine Control to start the generator. Once the generator is running, the ATS transfers the load to the generator. This process is reversed when utility power is restored.

In return, the Engine Control communicates to the ATS whenever the generator has a fault or if the generator's battery will not take or maintain a charge. The Engine Control monitors the battery voltage and will charge it, when necessary.

(Line Art of the two units here)

SAFETY INFORMATION

1. A licensed electrician or qualified installer must install this AutoGen Switch according to the National Electric Code and/or local codes. **WARNING** – Do not permit children to use this product.

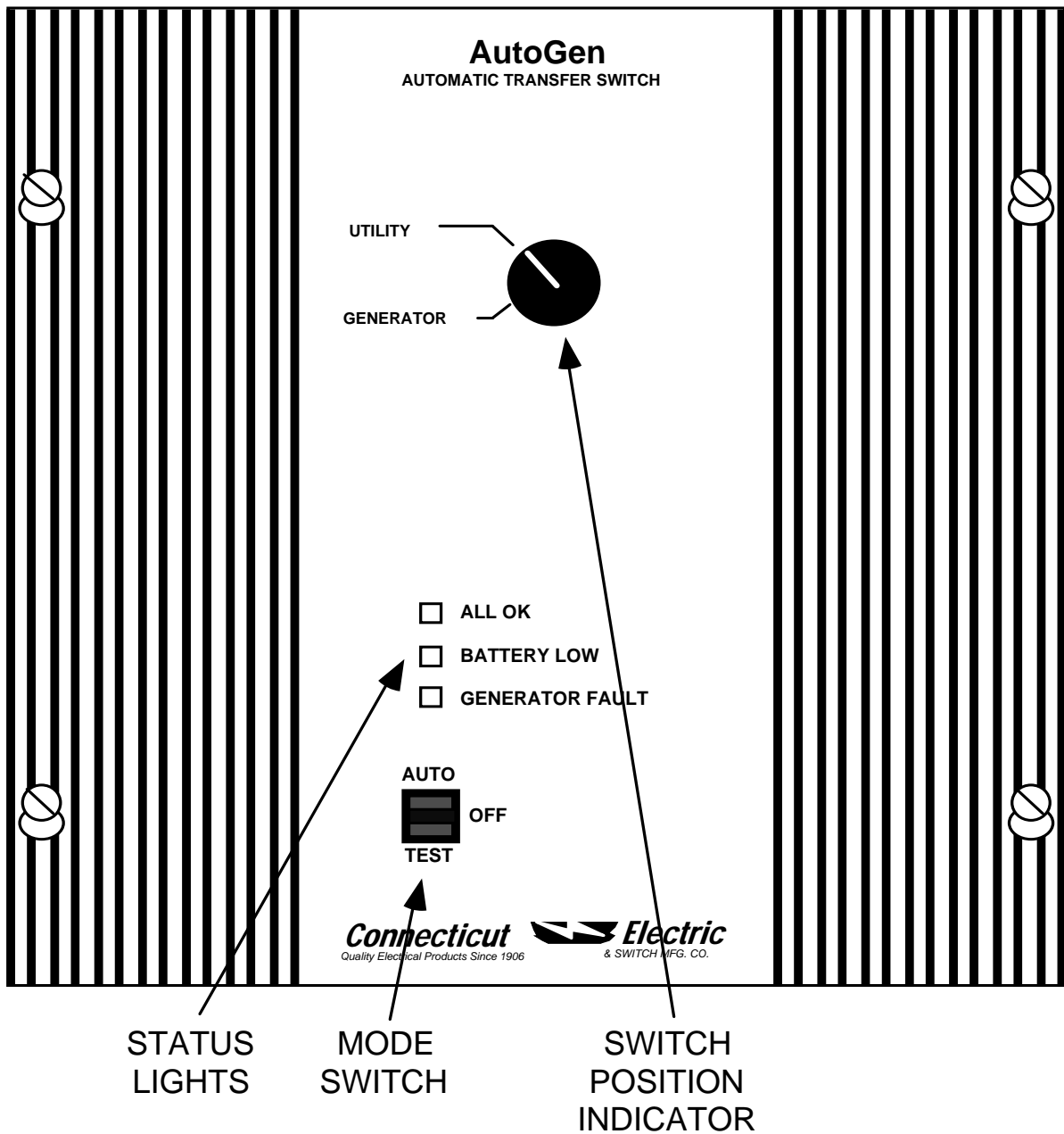
2. AutoGen must be used within its ratings. Consult the rating label located on the inside front panel of the Transfer Switch.
3. To reduce the risk of electrical shock, the MAIN circuit breaker in the service entrance panel must be OFF during the course of installation. Test to be sure power below the main has been cut off.
4. AutoGen is designed for use only with floating neutral generators. Generators where the neutral is connected to the generator frame (called a "bonded neutral") may be able to be converted to a floating neutral. Consult the generator manufacturer to see if this is possible. Use of bonded neutral generators may disable ground fault protection devices installed in the building.
5. AutoGen has been tested by Underwriter's Laboratories and is listed under UL 1008 Transfer Switch Equipment. UL 1008 also assures compliance with Article 702 of the National Electrical Code. AutoGen is listed as an Automatic Transfer Switch for use in Optional Stand-by Systems.
6. The AutoGen complies with FCC Part 15B, allowing residential use. See Identification Label on the ATS for further information.
7. The Engine Control is in a NEMA Type 3R raintight enclosure for outdoor use. Select a location protected from direct weather, on or in close proximity to the generator. The AutoGen Transfer Switch is for indoor use only.

GENERATOR COMPATIBILITY

The AutoGen Transfer Switch is compatible with most small electric start generators. However, with the large number of generator manufacturers and models, there may be some generators for which hookup to the AutoGen is difficult or impossible. (See pages 34-35) Consult this compatibility chart to determine if your generator is compatible with AutoGen.

COMPATIBILITY CHART		
	COMPATIBLE	NOT COMPATIBLE
START METHOD	Electric (Pushbutton or Key)	Manual Pull Cord
CAPACITY	50 Amps @ 240 VAC 12,000 Max. Watts	Generators With Output Higher Than AutoGen Rating
FUEL	Gasoline, LP Gas, Natural Gas, Diesel	Other Non-Conventional Fuel Sources
ELECTRICAL SYSTEM	12 Volt Negative Ground	Other Voltages and Grounding
CHOKE	Mechanical, Electric, Automatic	Primer Bulb, Choke without Remote Cable
GENERATOR NEUTRAL	Floating	Bonded

TRANSFER SWITCH CONTROLS



SWITCH POSITION INDICATOR:

The indicator knob points to UTILITY or GENERATOR depending on which power source the Transfer Switch is connected to.

TRANSFER SWITCH CONTROLS (cont'd)

STATUS LIGHTS:

ALL OK light - this green light is lit when the Transfer Switch is in AUTO or TEST mode and all is working well.

BATTERY LOW light - this red light is lit when the Transfer Switch detects that the generator battery is too low to be charged by the Transfer Switch or will not hold a charge.

GENERATOR FAULT light - this red light is lit when the generator did not start or did not generate power the last time it was attempted. It will stay lit until the situation is corrected or until the Transfer Switch is placed in the OFF Mode.

AUTO/OFF/TEST SWITCH:

OFF Mode - when the switch is in the OFF position, the Transfer Switch monitors only status of the generator battery. The Transfer Switch connects the load to the UTILITY power source and does not monitor for power failure. The ALL OK light will not be lit when in the OFF position.

TEST Mode - when the switch is in the TEST position, the Transfer Switch sends a signal to the Engine Control unit to immediately start the generator. If the generator starts, runs and generates power, the ALL OK light will light up. If the generator does not start or does not generate power, the GENERATOR FAULT light will come on. If the generator does not start after 10 seconds of cranking, it will stop for 10 seconds, and then will be attempted again. This procedure continues for 90 seconds total. Any further attempts to start it are canceled.

While the generator is running, the Transfer Switch will maintain the connection of the load to the utility power source, not the generator. As a result, running a TEST on the generator does not interrupt power to the loads.

If the utility power source happens to fail while the generator is running in TEST mode, the Transfer Switch **will** transfer the load to generator power.

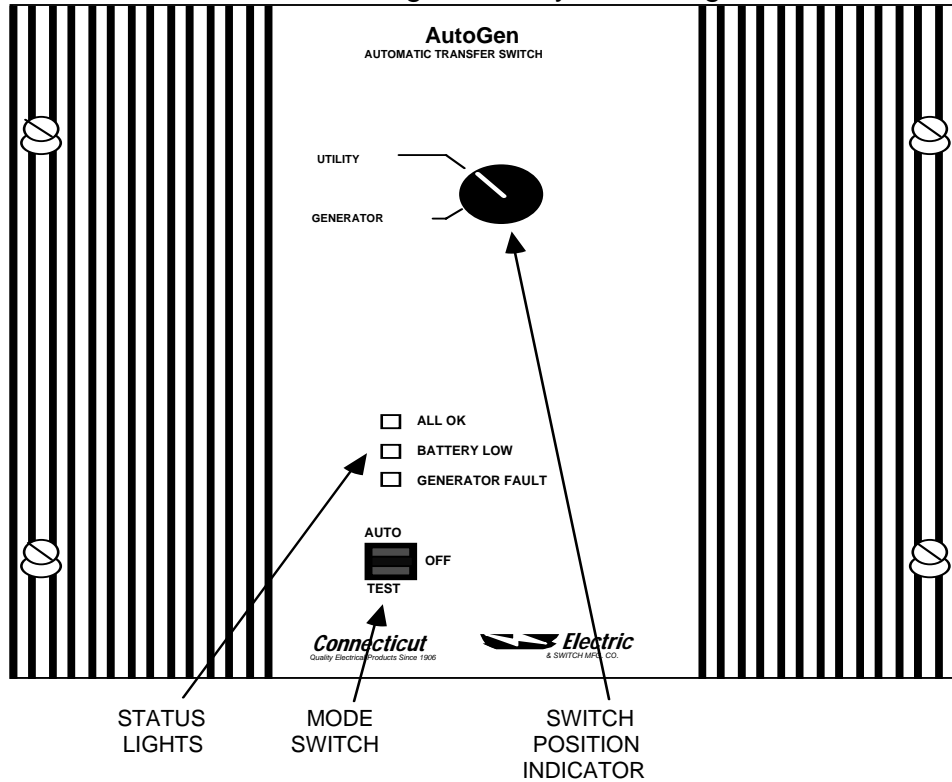
TRANSFER SWITCH CONTROLS (cont'd)

AUTO Mode - when the switch is in the AUTO position, the Transfer Switch monitors the status of the utility power source. If the utility power source fails, the Transfer Switch signals the Engine Control to start the generator and transfers the load to the generator after it has been running for approximately 10 seconds. When the utility power is restored and stays on for approximately 1 minute, the load is transferred back to the utility power source, the generator is stopped, and the Transfer Switch goes back to monitoring the utility power for failure.

The AUTO Mode also provides an automatic exercise cycle every 4 weeks. The time and day for this cycle matches the approximate day and time when the

switch is put in the AUTO Mode. For example, if the switch is put in the AUTO Mode on Monday at 1pm, then the exercise cycle will occur Monday at 1pm every 4 weeks until the switch is taken out of AUTO Mode.

This automatic exercise cycle works just like the TEST Mode. The generator is started and its power output monitored. If the generator does not start or generate power, the GENERATOR FAULT light will stay lit until it gets attention or is turned off.



PLANNING THE INSTALLATION

The Transfer Switch should be mounted in close proximity to the building's service entrance panel AND to the manual transfer or emergency sub-panel. The connections to the service entrance panel and to the generator power are in the right-hand half of the Transfer Switch, so it is generally easier to locate it to the left of the service entrance panel. The connection to the manual transfer switch or emergency sub-panel is located in the left-hand half of the Transfer Switch.

Depending on the type of manual transfer switch or sub-panel installed, the connection from AutoGen to the manual transfer switch/sub-panel may be in conduit or via a cord whip.

You will need a dedicated double pole breaker (50 amp maximum) corresponding to the maximum input of your manual transfer switch (or emergency sub-panel), as well as appropriately-sized wire (#6 AWG maximum). Also, due to the varied applications, it is important to plan ahead and determine all the materials and/or tools you may need. A number of engine-specific adapters have been included for possible use for your installation.

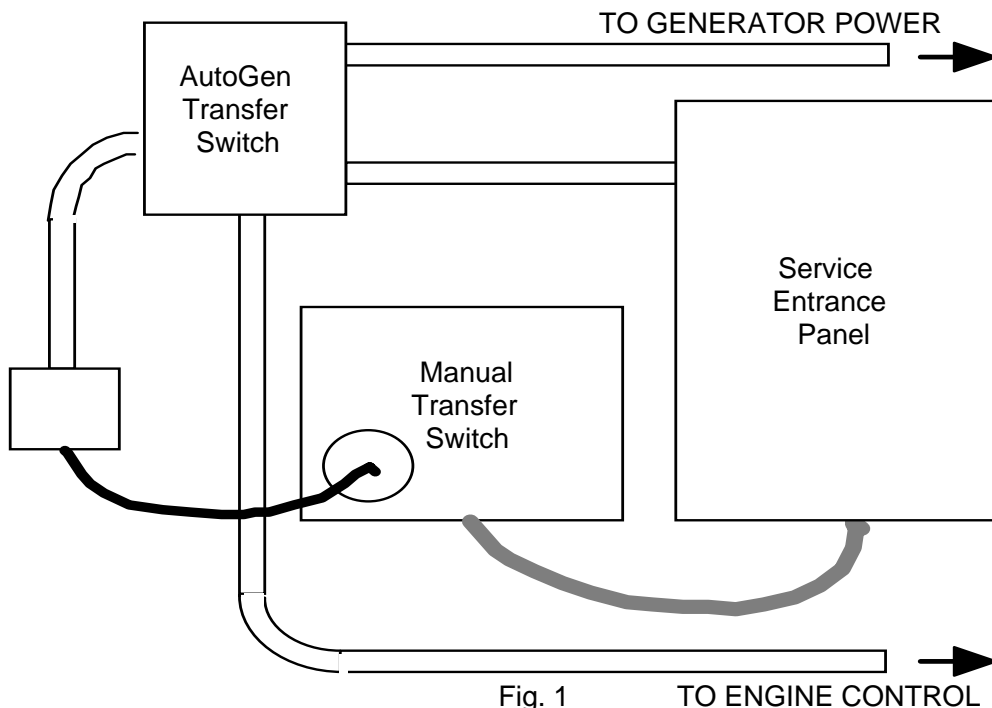


Fig. 1

PLANNING THE INSTALLATION (cont'd)

Engine Control

The Engine Control comes pre-wired with five 6' electrical cables and one 5' mechanical choke cable. The Engine Control can be located either on or near the generator as long as these cables can reach the required connection points on your generator. A 50-foot control cable is used to connect the Transfer Switch to the Engine Control.

NOTE: The control cable must be placed in conduit to adhere to the National Electrical Code. Check your local codes for further information. This control cable can be up to 100 feet in length (purchased separately), taking into account that you increase your chances of voltage drop and/or reliable communication operation, the longer the cable. The control cable is a straight Category 5 patch cable.

Generator

The generator's power output must be within the rating limits of the Transfer Switch. The generator must be located and mounted according to the generator manufacturer's instructions. Generally this requires that the generator be located outdoors and is protected from the weather. It must also be in a location to reach the Engine Control Box via its cables.

MOUNTING THE AutoGen TRANSFER SWITCH

REMOVE POWER BY TURNING OFF THE MAIN BREAKER IN THE SERVICE ENTRANCE PANEL. USE A TESTER TO BE SURE!

Select a location for the Transfer Switch that is in close proximity to the service entrance panel and the manual transfer switch (or sub-panel). The location should be dry and not excessively hot. Avoid locations next to steam pipes or other locations that are not kept at normal room temperatures.

Remove the front cover of the Transfer Switch. The mounting holes for the Transfer Switch are located in the back of the enclosure. Determine which knockouts will be used for the installation and remove them. Note that the cable to the Engine Control **MUST** use the lower center knockout and it may be necessary to use conduit adapters. Since the cable is pre-terminated with a modular connector, 3/4-inch conduit or larger makes pulling the cable easier.

Mount the Transfer Switch enclosure through the rear mounting holes using hardware appropriate for the mounting surface (metal, wood, plaster, etc.). Consult your local codes to determine if conduit is required. If it is, you may find it easier to make some of the conduit connections as you are mounting the enclosure. The following instructions assume that conduit is used.

WIRING THE NEUTRAL

The ATS switches only the hot sides of the AC power circuits, not the neutrals. Since there is no need to switch the neutral, wires for it should be passed through the Transfer Switch uncut and connected directly to the neutral bar of the service entrance panel. The neutral wires should be the same gauge and type as used for the hot wires.

WIRING TO THE SERVICE ENTRANCE PANEL

In your service entrance panel, install a dedicated two-pole 50 amp circuit breaker appropriate to your load center. Run two appropriately sized wires (#6 - 75°C. maximum) from the breaker through the conduit to the Transfer Switch. Connect one wire to one of the "UTILITY" connectors and connect the remaining wire to the other "UTILITY" connector. (Refer to schematic on inside of front cover.) Tighten to 45 inch-lbs. On the breaker, tighten the wires in accordance

with the breaker label instructions. An enclosure ground connection is provided for situations where the local code calls for one.

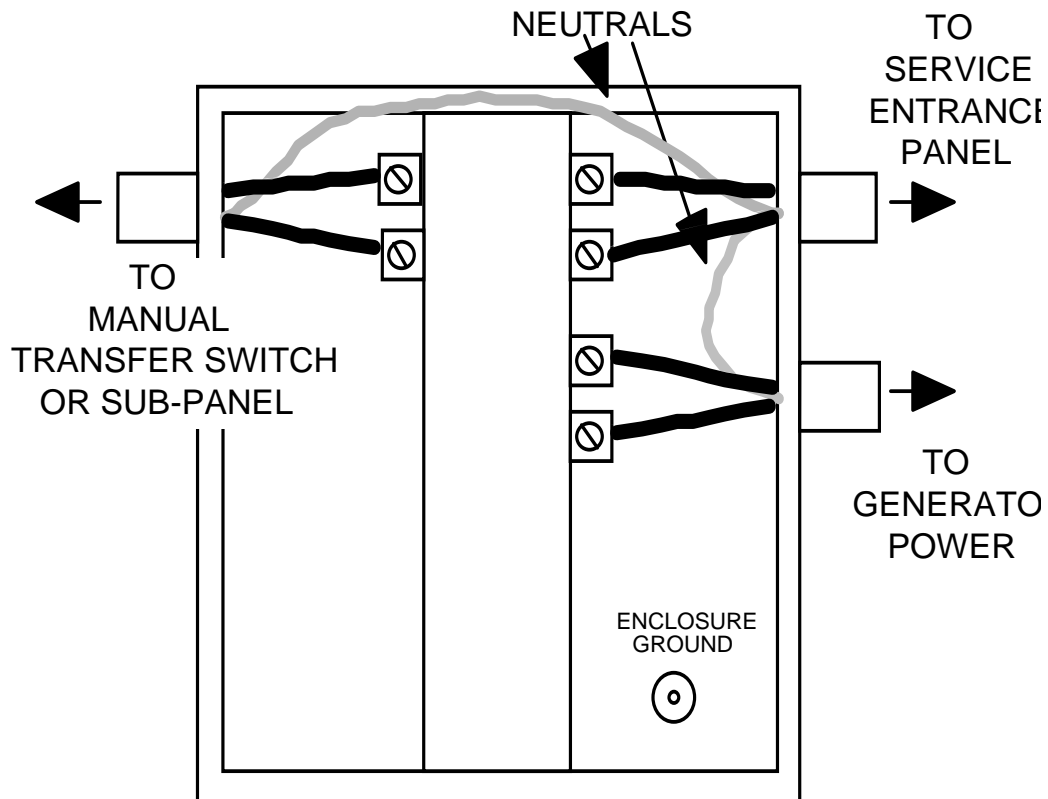


Fig. 2

WIRING TO THE GENERATOR

The generator is connected to a raintight box on the outside of the building via a flexible power cable. Conduit is run from the box to a knockout on the right hand side of the Transfer Switch. Run wires sized to match the amperage needs of your manual transfer switch (or emergency sub-panel from the raintight box to the Transfer Switch "GENERATOR" connectors. Tighten the connectors in the Transfer Switch to 45 inch-lbs. and tighten the connectors in the raintight box accordingly.

WIRING TO THE MANUAL TRANSFER SWITCH (or Sub-Panel)

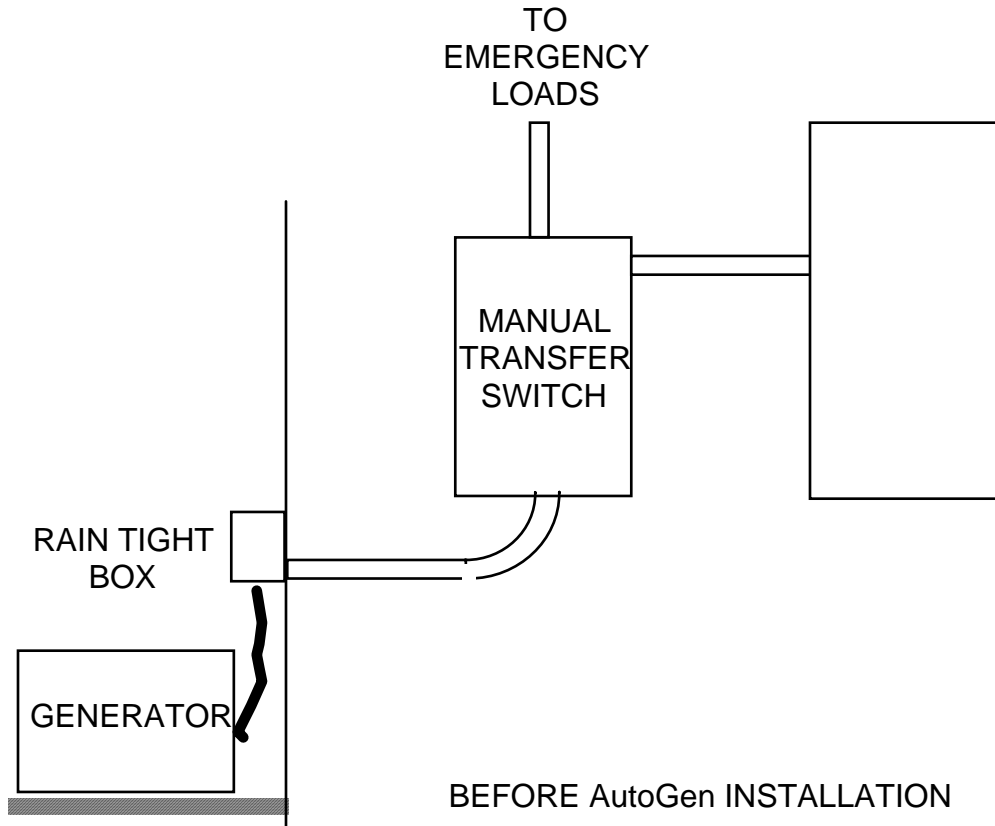
The connections for the manual transfer switch or sub-panel are on the left-hand side of the Transfer Switch.

Manual Transfer Switches are designed to connect selected loads from your service entrance panel to a generator, allowing you to select the particular loads to power with the generator based on a particular situation, while still keeping the total load within the capabilities of the generator.

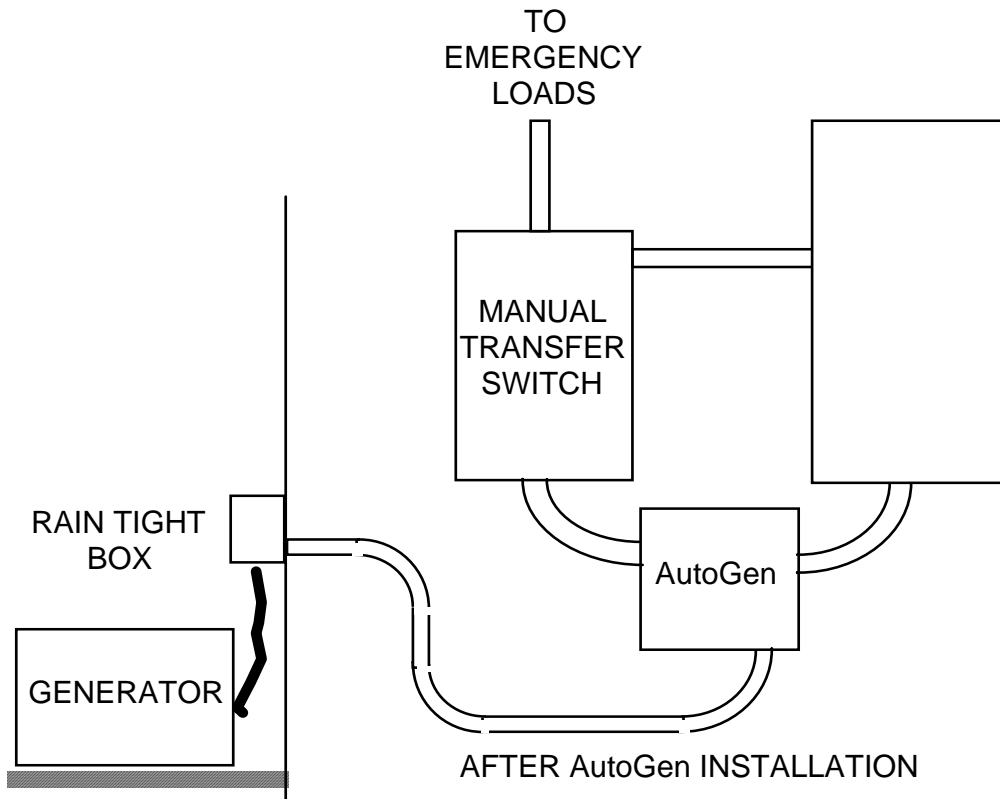
AutoGen is compatible with all types of manual transfer switches, with or without the use of flexible conduit or power cords. The following drawings show

“before” and “after” AutoGen installations with two popular types of manual transfer switches.

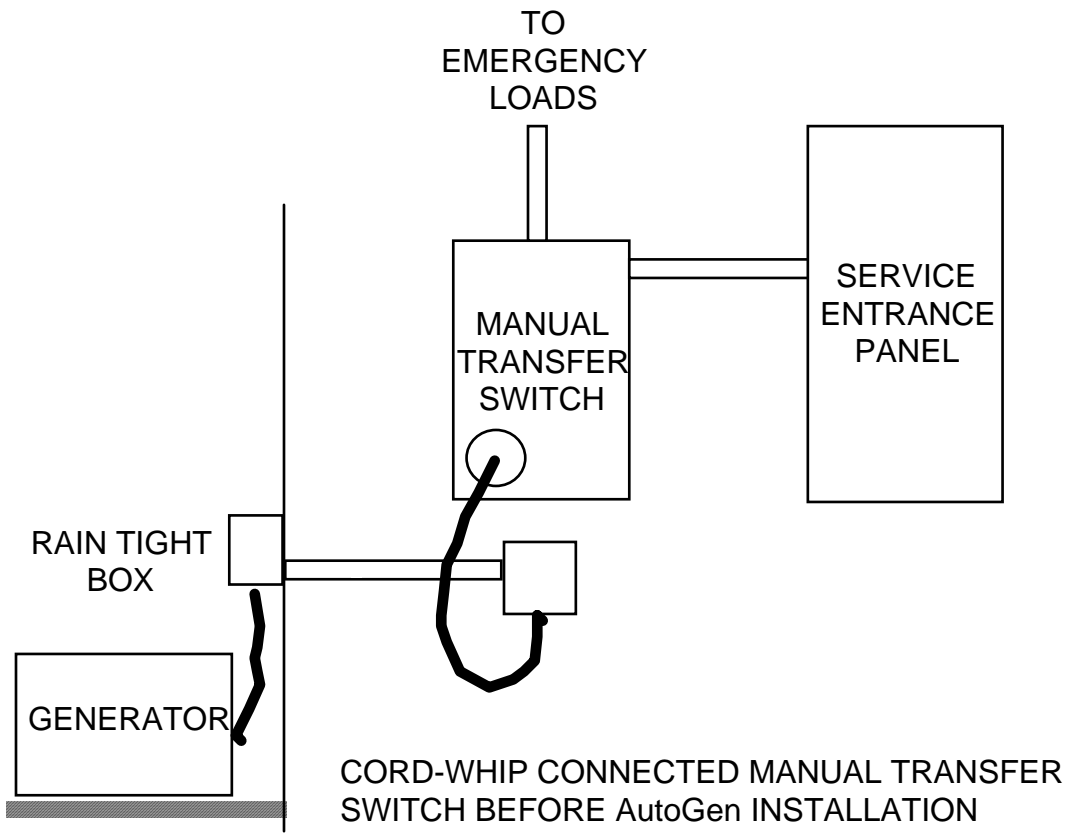
Manual Transfer Switch Configurations



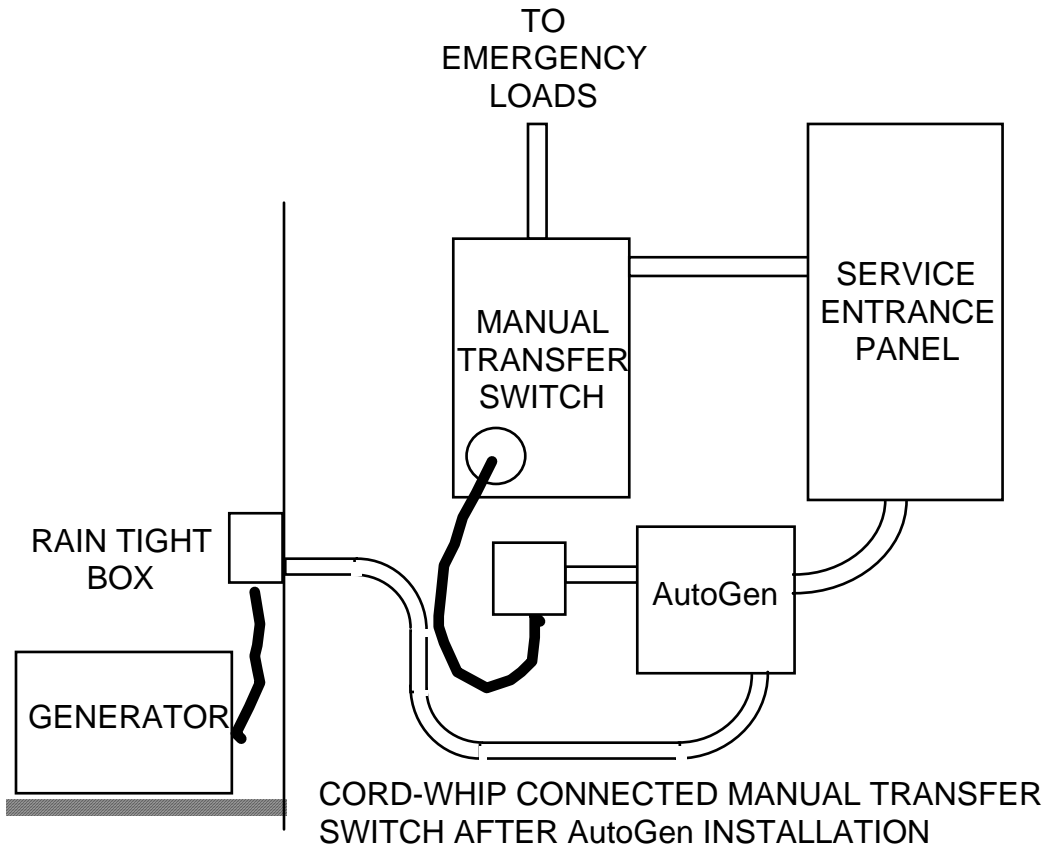
WIRING TO THE MANUAL TRANSFER SWITCH (or Sub-Panel) (cont'd)



WIRING TO THE MANUAL TRANSFER SWITCH (or Sub-Panel) (cont'd)



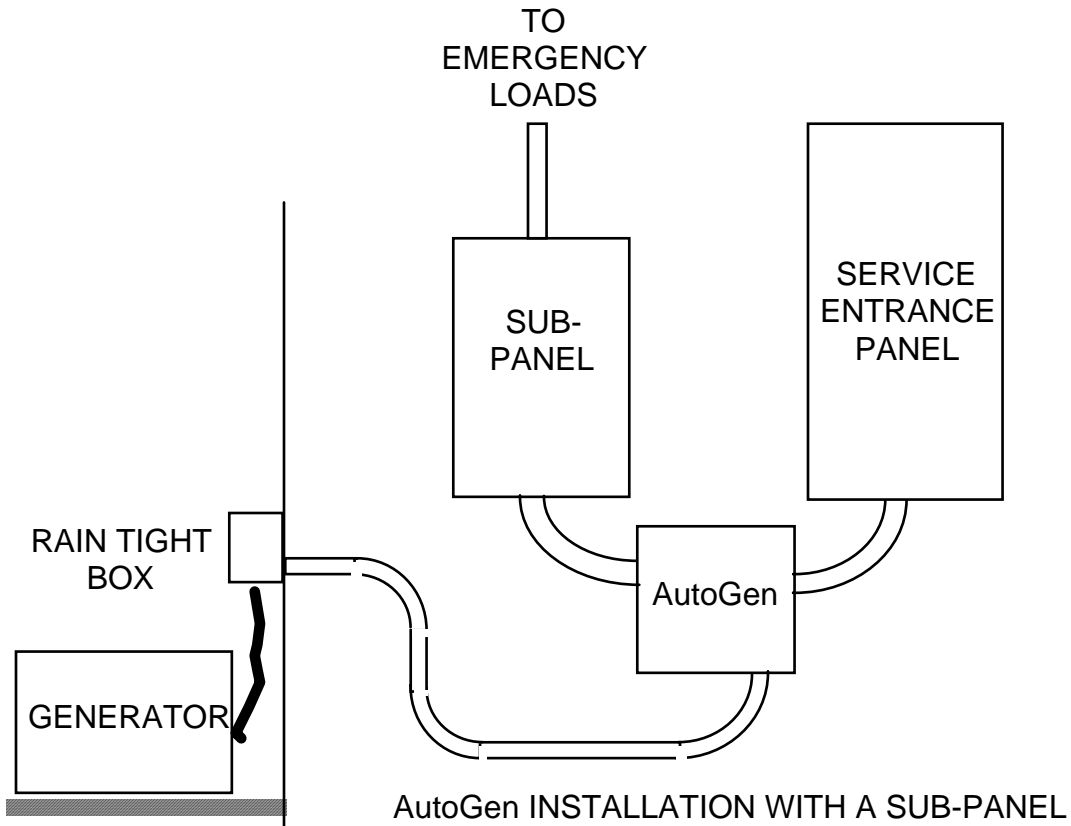
WIRING TO THE MANUAL TRANSFER SWITCH (or Sub-Panel) (cont'd)



WIRING TO THE MANUAL TRANSFER SWITCH (or Sub-Panel) (cont'd)

Sub-Panel Configuration

A sub-panel accomplishes the same thing as a manual transfer switch in that only selected loads are put on the sub-panel, again keeping the total load within the capabilities of the generator. The difference is that the sub-panel does not provide the seasonal selection of which loads are on generator backup.



MOUNTING THE ENGINE CONTROL BOX

REMOVE ANY JEWELRY BEFORE HANDLING AND CONNECTING BATTERY CABLES. LOOSE JEWELRY IS CAPABLE OF CREATING A SHORT CIRCUIT AND POSSIBLY CAUSING SEVERE BURNS.

Disconnect the battery cables at the generator battery, noting which wires go to which battery terminals.

The Engine Control is intended to be mounted to the tubular frame of the generator, however, it can be mounted anywhere it is convenient, as long as the cables can be properly connected. Select a location that is away from extreme heat, like the engine exhaust. Mount the Engine Control to the frame using the plate and two nuts located on the back of the Engine Control.

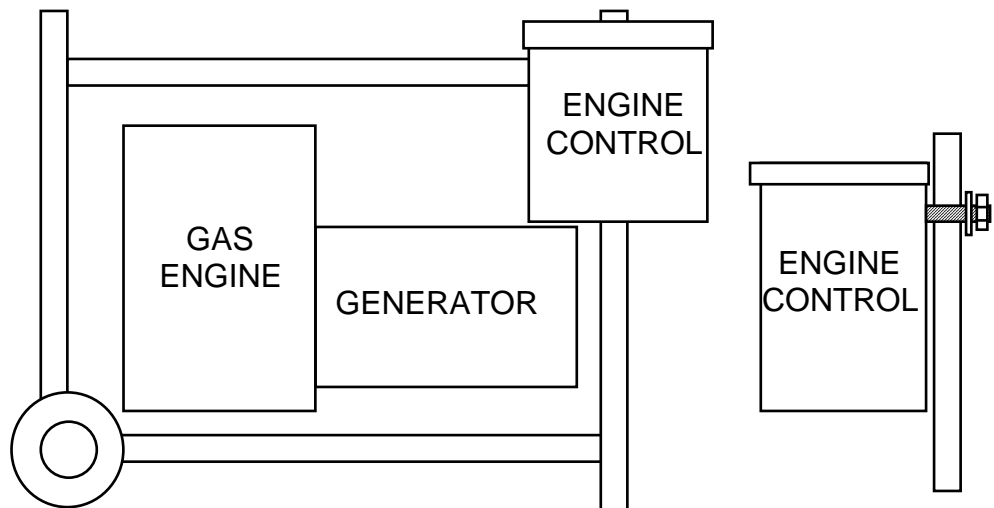


Fig. 4

(Side View)

GENERATOR ENGINE WIRING

GASOLINE, LP/NATURAL, DIESEL

There are three types of engines covered in this section:

- (1) Gasoline
- (2) LP or natural gas
- (3) Diesel

All three engine types share the same electrical hookup for the battery and starter. The blue starter cable from the Engine Control connects to the large terminal on the starter motor, which already has the wire from the generator start switch (or starter solenoid).

The red (+) and black (-) battery cables from the Engine Control connect respectively to the positive (+) and negative (-) battery terminals.

DO NOT CONNECT THE BATTERY CABLES AT THIS TIME, ONLY THE BLUE STARTER CABLE.

Three terminals are provided in the Engine Control for the other engine electrical connections.

Terminal 1 is always used for RUN/STOP on gasoline driven engines.

Terminal 2 is used for the FUEL FLOW VALVE on all engines.

Terminal 3 is used for:

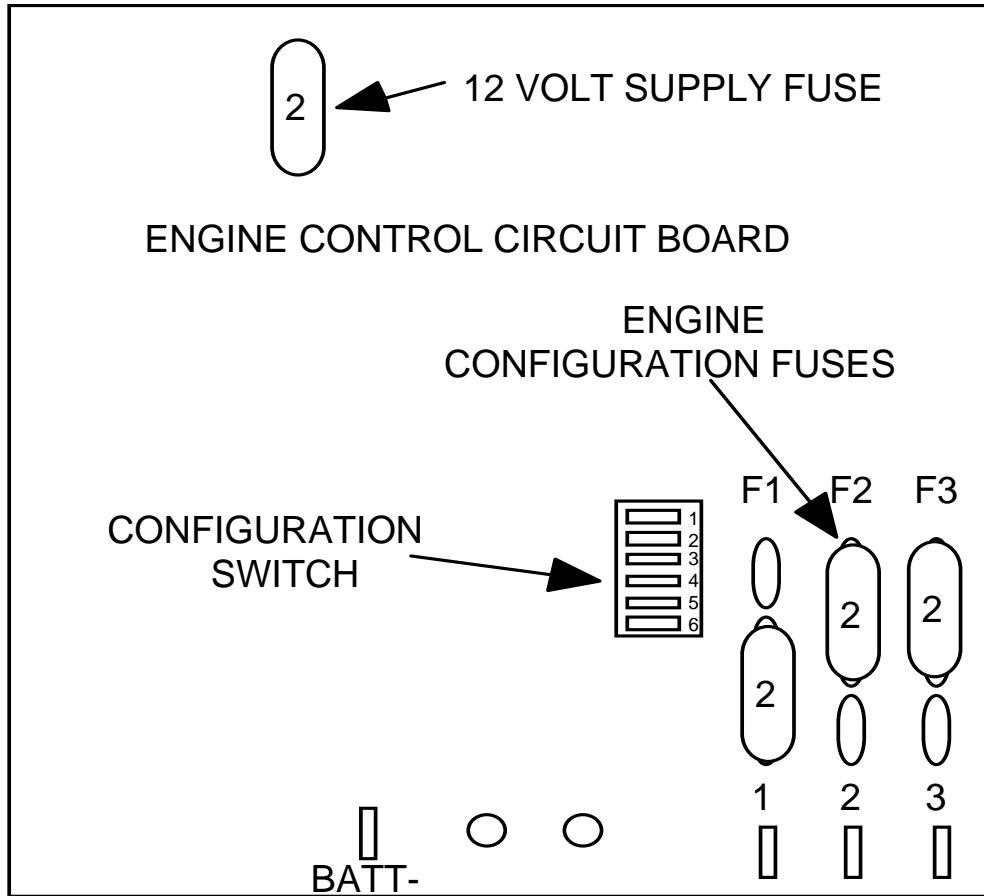
- the ELECTRICAL CHOKE on gasoline engines, or,
- the PRIMER on LP/Natural gas engines, or,
- the GLOW PLUG on diesel engines.

GENERATOR ENGINE WIRING (cont'd)

Three fuses control whether Terminals 1, 2 and 3 connect to ground (battery -) or +12 volts (battery +) when activated. Fuse F1 controls Terminal 1, F2 controls Terminal 2 and F3 controls Terminal 3.

Each fuse can be in one of two positions. The upper position will cause the respective terminal to be connected to +12 volts when that terminal is on. The lower position will cause the respective terminal to be connected to ground (battery -) when that terminal is on.

The Engine Control is shipped with F1 in the lower position, F2 and F3 in the upper position. This is the normal configuration for most engines. If you must adapt to an engine with different controls, then the fuses can be moved to match the electrical hookups on the engine.



FACTORY FUSE POSITIONS: F1 DOWN, F2, F3 UP

GENERATOR ENGINE WIRING (cont'd)

Gasoline Engines

To begin wiring the Engine Control box to your generator, the generator must be turned off by grounding its ignition kill wire. On pushbutton start generators, the ignition kill wire is connected to the RUN/STOP switch; on key-start generators it is connected to the key start switch.

Consult your generator manual to locate this ignition kill wire. To make the connection, tap into the wire with a “T-Tap” connector and then insert the white Engine Control wire into the connector. Connect the white wire to Terminal 1.

Some gasoline engines have an electrical fuel flow valve wire, which must be disconnected for use with the Transfer Switch. Disconnect this wire at the RUN/STOP switch or the RUN switch (not at the fuel solenoid) and tape its end to prevent shorting to the generator frame.

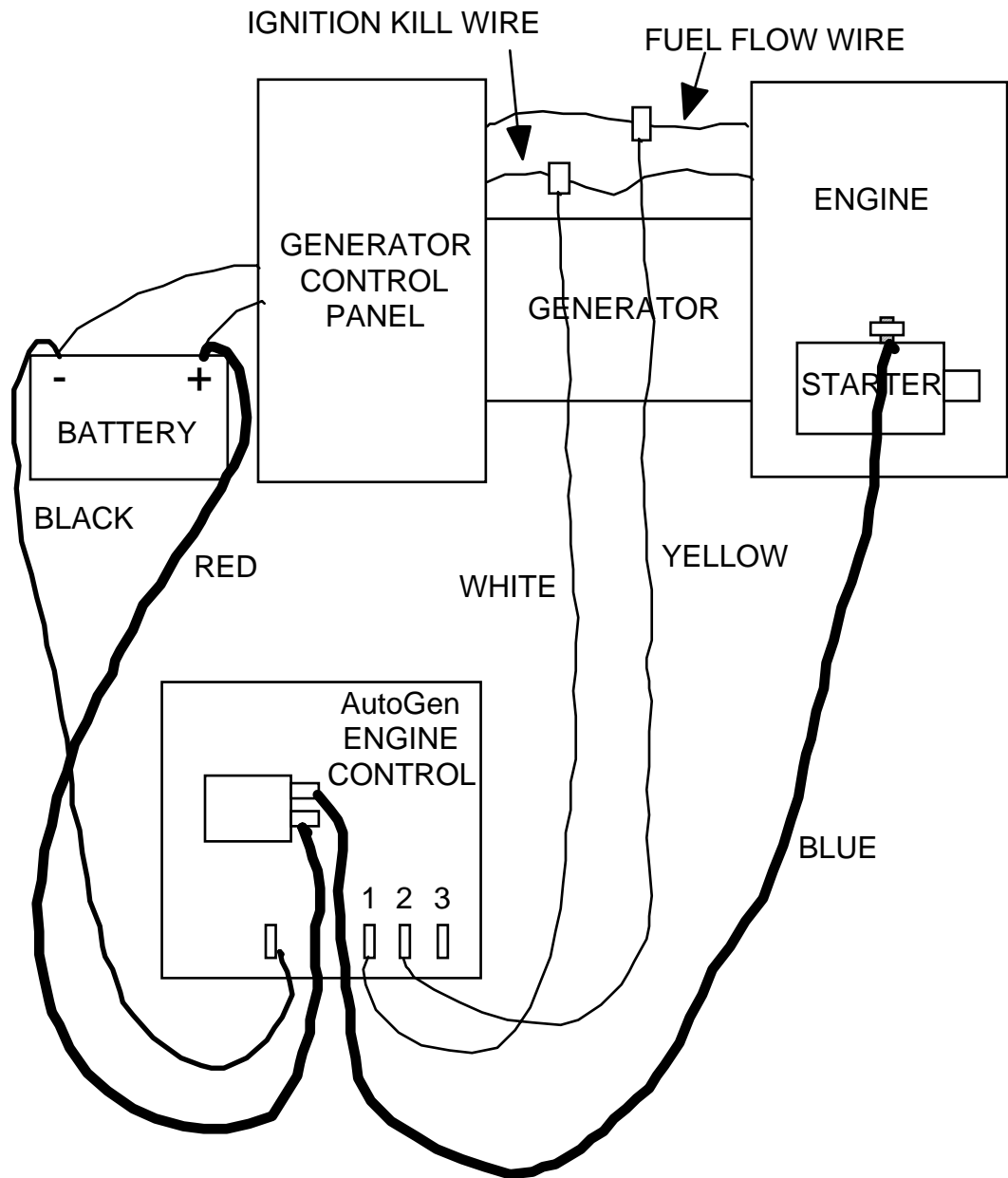
Next, locate the electrical fuel flow valve wire. Again, tap into it using a “T-Tap” connector and insert the yellow Engine Control wire into the connector using the 3” male-male adapter that is provided. Connect this wire to Terminal 2.

If your generator does not have an electrical fuel flow valve wire, the yellow Engine Control wire is not needed and needs to be removed.

Some gasoline engines have an electric choke. Consult your generator manual to determine if the engine has an electric choke then locate the wire that controls it and connect it to Terminal 3. Terminal 2 is unused.

GENERATOR ENGINE WIRING (cont'd)

Gasoline Engines (cont'd)



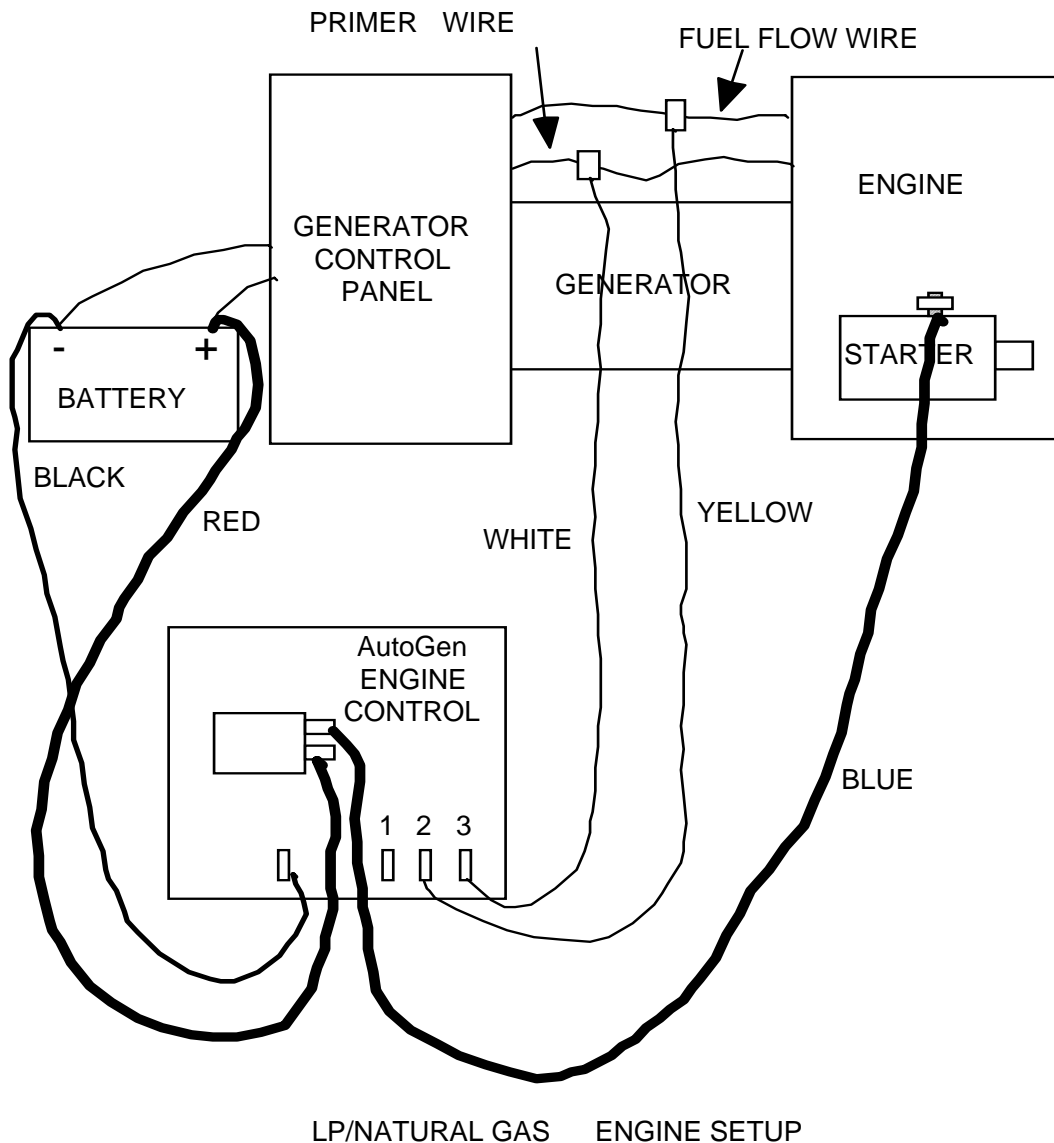
GASOLINE ENGINE SETUP

GENERATOR ENGINE WIRING (cont'd)

LP/Natural Gas Engines

Locate both the fuel flow valve wire and the primer wire. To make the first connection, find the fuel flow valve wire, tap into it with a "T-Tap" connector and insert the yellow Engine Control wire into the connector using the 3" male-male adapter that is provided. Connect the yellow wire to Terminal 2.

Next, find the primer wire. Tap into it with a "T-Tap" connector and then insert the white Engine Control wire into the connector. Connect this wire to Terminal 3. Terminal 1 is unused.



LP/NATURAL GAS ENGINE SETUP

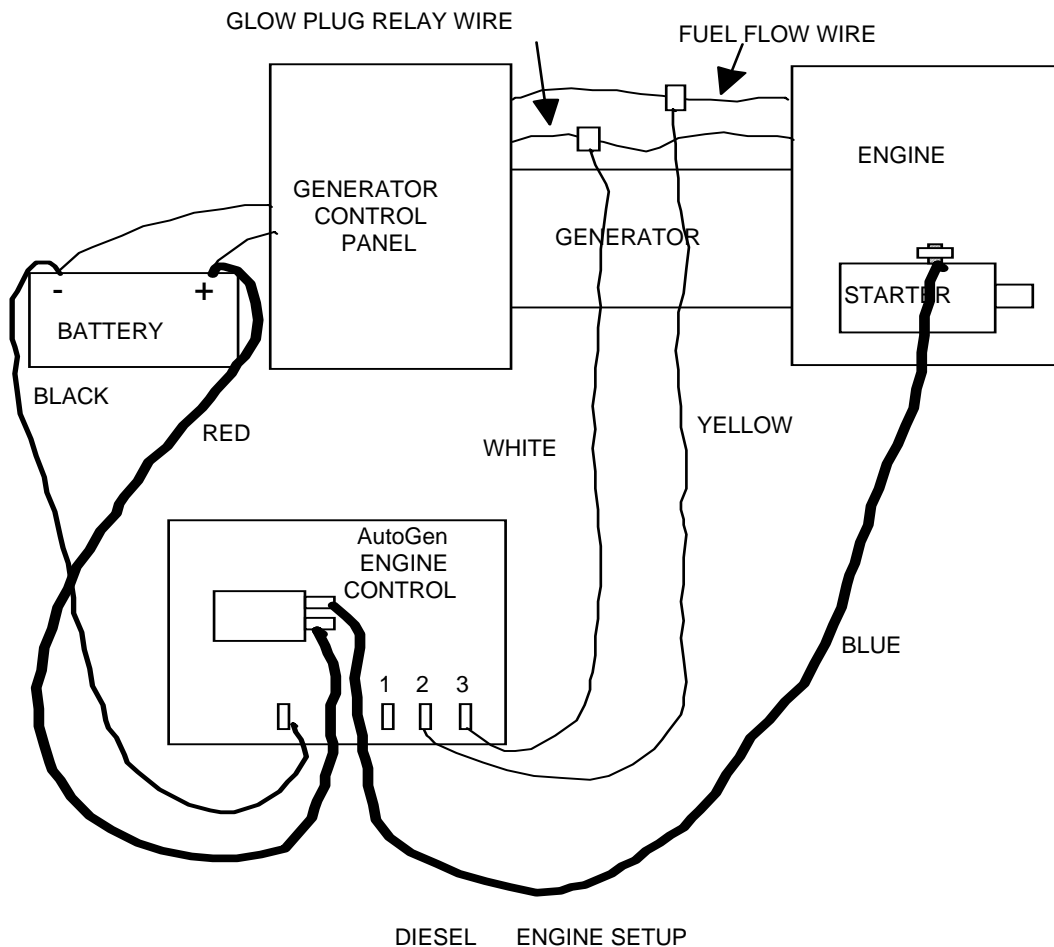
GENERATOR ENGINE WIRING (cont'd)

Diesel Engines

Locate both the fuel flow valve wire and the glow plug relay wire. To make the first connection, find the fuel flow valve wire. Tap into it with a “T-Tap” connector and then insert the yellow Engine Control wire into the connector using the 3” male-male adapter that is provided. Connect the yellow wire to Terminal 2.

Next, locate the glow plug relay wire. Tap into it with a “T-Tap” connector and then insert the white Engine Control wire into the connector. Connect this wire to Terminal 3. Terminal 1 is unused.

Move slide/rocker switch 1 to ON so the Engine Control knows it is connected to a diesel engine.



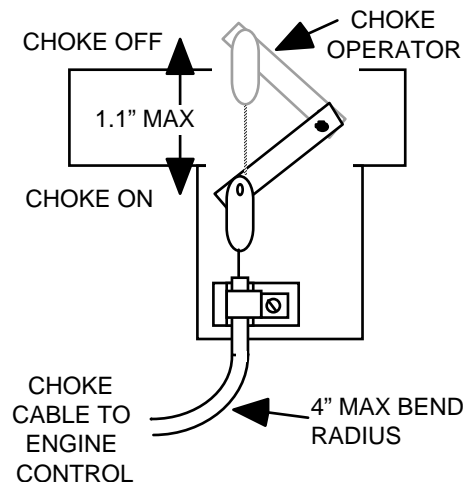
CONNECTING THE CHOKE CABLE

If your generator does not have a mechanical choke, disconnect the choke linkage at the Engine Control servomotor by removing the small screw fastening the linkage to the white circular wheel on the servomotor. Loosen the black choke cable strain relief at the bottom right of the Engine Control enclosure and remove the choke cable.

Mechanical Choke

Most small generator engines are equipped with a manual mechanically operated choke. All choke operators share the same need - to rotate a choke shaft 90 degrees from full off to full on.

Various types of mechanical operators are used to create this movement. The AutoGen Transfer Switch is most compatible with engines that have a provision for a remote choke operation cable. Other types of choke operators use a lever to move the choke operator, with various methods to hold the choke lever in place once moved.



The Engine Control provides a control cable whose outer housing must be firmly held in place close to the engine choke operator. The control cable contains an inner cable which connects to the engine choke operator and performs the actual movement of the choke operator.

CONNECTING THE CHOKE CABLE (cont'd)

For an engine having provision for a remote choke cable:

1. Fasten the choke cable's outer housing to the engine using a nylon cable clamp, rubber reducer, and a #8 sheet metal screw (provided). Put the rubber reducer over the end of the choke cable's outer housing to allow it to be gripped by the nylon cable clamp. Fasten the cable clamp to the engine using the screw hole on the engine provided for this purpose. Be aware that some generator manufacturers intend for a machine screw to be used so you may have to use a different screw than the one provided.
2. The bend radius of the choke cable must be 4 inches or greater to prevent kinking or binding of the inner choke cable. Using a small flat blade screwdriver, gently pry open the spring clip that is mounted to the end of the inner choke cable just enough so that its fastening pin can be put through the hole in the engine choke operator. Keep the inner choke cable straight.

When an engine has no provision for a remote choke cable, you will need to devise one. One example is to run the choke cable through 1/4 inch copper tubing, securing the tube with a 1/4 inch compression union and a short length of the rubber reducer (provided). Secure the copper tubing to the frame using an appropriate sized hose clamp to fit the generator frame.

Other methods of fastening the choke cable outer housing to the engine can also be used, as long as they provide a means to secure the choke cable's outer housing close to the engine choke operator so that it cannot move when the inner choke cable is moved.

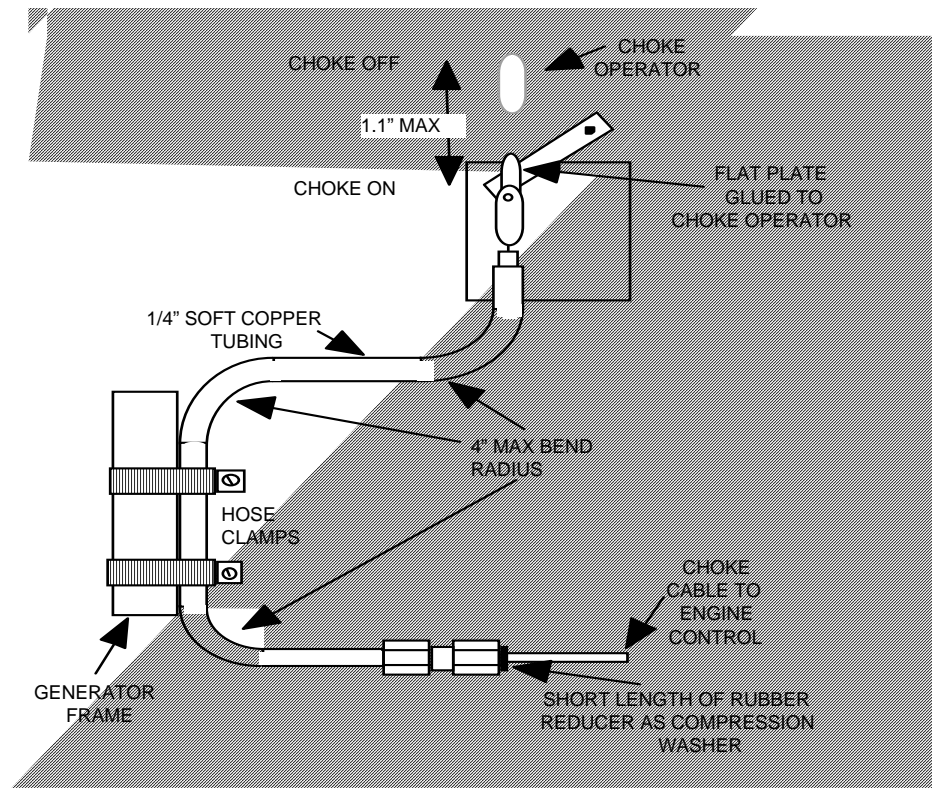
Note: Most choke operators have some type of friction device to hold the choke operator in position once it has been moved. The friction device must be disabled so that the Engine Control servomotor will be able to move the choke operator. Locate the friction device and remove it or disable it so that the choke operator moves freely.

CONNECTING THE CHOKE CABLE (cont'd)

If the choke operator has a hole in it that will accept the pin in the choke cable spring clip, then fasten the clip as shown in the drawing.

If there is no hole provided, locate the flat plate with two holes that is provided. Determine a location on the engine choke operator lever for the flat plate that will allow the choke cable spring clip to be fastened to the plate **and** where the total movement required to go from choke OFF to choke ON is 1.1 inches or a little less. Secure the flat plate using epoxy glue (not supplied) or double face foam

tape (supplied). Epoxy glue will provide a more secure connection than the tape. Once the glue has set, the choke cable spring clip can be secured to the hole in the flat plate.



If the engine choke direction does not match the figure above (choke OFF = cable push, choke ON = cable pull), move Slide/rocker switch 2 to the ON position inside the Engine Control to reverse the choke operation.

Connect the Control Cable to the modular jack located in the lower left corner of the circuit board inside the Engine Control.

SYSTEM CHECKOUT

Checking the Wiring

Double-check all wiring connections on the Transfer Switch, Engine Control, service entrance panel, generator, and manual transfer switch (or sub-panel) to make sure that all are connected to the proper terminals, and that the terminals are tightened according to the specifications. An inspection may be necessary at this point. **Units damaged by improper wiring or installation are not covered by the warranty.**

Place the Transfer Switch front panel back in place, making sure that the knob goes through the bushing and that the AUTO/OFF/TEST switch is seated squarely in the front panel. Fasten the panel in place with the screws. Replace the

cover of the service entrance panel and/or other covers removed during installation.

Checking the Engine Control Operation

On the Transfer Switch, make sure that the AUTO/OFF/TEST switch is in the OFF position. On the Engine Control, remove the cover and find the row of small slide/rocker switches. The right is labeled ON. Using a blunt pencil tip, or other non-metallic object, make sure that all slides are pushed to the left, to the OFF position. The exceptions are diesel engines will have switch 2 ON and reversed choke engines will have switch 1 ON.

Connect the black wire from the Engine Control to the generator battery negative (-) terminal and connect the large red wire from the Engine Control to the battery positive (+) terminal. Other wires from the generator to the battery should be connected according to the generator manufacturer's instructions.

The green light on the Engine Control circuit board will flash until communication is established, then be steady indicating that the Engine Control is receiving power from the generator battery. If the green light does not come on or it continues to flash, disconnect the red and black wires from the battery and re-check that the connections have been done properly.

The red light on the Engine Control circuit board is for diagnostic purposes only.

SYSTEM CHECKOUT (cont'd)

Mechanical Choke Checkout

If the generator engine has a mechanical choke, locate the slide/rocker switches on the Engine Control circuit board. Switch 1 is at the top, and underneath are switches 2, 3, 4, 5 and 6. Slide switch 1 to the right, to the ON position. Check that the choke linkage on the generator engine is tracking this movement and it moves to one extreme of its travel. Sliding switch 1 to the OFF position will cause the choke drive motor to move to the other extreme of its travel. Check again that the engine choke linkage tracks this movement. For normal operation, this switch should be left in the OFF position.

System Testing

Turn on the breaker in the service entrance panel that is dedicated to the Transfer Switch. Power is now available at the manual transfer switch (or sub-panel). Switches in these panels that are in the "generator" position should now have power supplied from the Transfer Switch.

Go to the Transfer Switch and move the AUTO/OFF/TEST switch to the TEST position. The generator should start and the green ALL OK light should light up. If the generator did not start, or the GENERATOR FAULT light comes on, consult the troubleshooting section of this manual. Move the AUTO/OFF/TEST switch to the OFF position.

Depending on the battery condition at the time of installation, the BATTERY LOW light may or may not be on. If it is on, let the Transfer Switch internal battery charger bring the battery back to full charge. Note that this may take a few days if the battery is very low. (The Transfer Switch cannot recharge a completely drained battery.)

Turn the AUTO/OFF/TEST switch to the AUTO mode. Turn off the breaker feeding the Transfer Switch. The generator should start, and after 10 or so seconds of running, the Transfer Switch should transfer generator power to the manual transfer switch (or sub-panel). Turning the breaker back on results in the Transfer Switch turning the generator off and transferring power from the utility to the manual transfer switch (or sub-panel), after a one minute delay.

SYSTEM CHECKOUT (cont'd)

System Testing (cont'd)

The Transfer Switch AUTO mode includes an automatic 4 week exercise cycle. It is highly recommended that the automatic exercise be used to periodically verify that the generator, its battery and all other connections remain operable. The result of each exercise is reported on the GENERATOR FAULT light on the front panel of the Transfer Switch if a problem occurred.

This exercise occurs 4 weeks from the date and time that the AUTO/OFF/TEST switch is put in the AUTO mode. For example, if the switch is put in AUTO on Monday at 1pm, then the next exercise cycle will be on Monday at 1pm, 4 weeks later.

To turn off the automatic exercise timer, turn Slide switch 3 to the right, to the ON position in the Engine Control.

Replace the cover on the Engine Control. Installation is now complete.

TROUBLE SHOOTING

Problem	Cause	Solution
BATTERY LOW light comes on.	<ol style="list-style-type: none"> 1. Battery is low. 2. Control cable to Engine Control is disconnected or broken. 	<ol style="list-style-type: none"> 1. Wait for 1-2 days with battery connected to AutoGen. If still on, disconnect battery and charge with a separate high capacity charger. If battery does not recharge, replace it. 2. Check Control cable.
Generator starter does not crank engine.	<ol style="list-style-type: none"> 1. Loose connection on large blue cable to starter or large red cable to battery positive (+). 	<ol style="list-style-type: none"> 1. Check that connections are tight.
Generator cranks but does not start.	<ol style="list-style-type: none"> 1. Mechanical choke not operating. 2. Fuel problem. 3. RUN/STOP switch in STOP position. 4. Low oil level. 	<ol style="list-style-type: none"> 1. Check that choke cable is not binding because of a tight bend in the cable. 2. Use a fuel stabilizer to keep gas fresh, otherwise it will gum up the engine carburetor. 3. Leave generator RUN/STOP switch in RUN when hooked to AutoGen. 4. Check and fill oil.

Problem	Cause	Solution
Generator starts but GENERATOR FAULT light comes on.	<ol style="list-style-type: none"> 1. Generator circuit breaker has tripped. 2. Poor power connection from generator to Transfer Switch. 3. Fault in generator. 	<ol style="list-style-type: none"> 1. Correct the problem and reset circuit breaker. 2. Check and repair. 3. Consult generator manual.
Generator slows way down or stalls when loads are connected to it.	<ol style="list-style-type: none"> 1. Generator overloaded. 2. Short circuit in a connected load. 	<ol style="list-style-type: none"> 1. Turn off some loads. 2. Disconnect shorted load.
Engine functions (run/stop, fuel flow, choke, etc.) connected to terminals 1, 2 or 3 do not operate when Engine Control is tested.	<ol style="list-style-type: none"> 1. Fuse F1, F2 or F3 blown due to wrong position (upper or lower) for the engine or improper connection. 	<ol style="list-style-type: none"> 1. Correct wiring error and replace the fuse with an automotive-style 2 amp fuse (5 amp max.).
Green light in Engine Control does not come on when Engine Control is connected to the battery.	<ol style="list-style-type: none"> 1. 12 volt supply fuse blown. 2. Black or red cables not properly connected to the battery. 	<ol style="list-style-type: none"> 1) Replace the fuse with an automotive 2 amp fuse (5 amp max.). 2. Check cable connections.
Generator runs and ALL OK light is on, but connected loads are not working.	<ol style="list-style-type: none"> 1. Circuit breaker to that load has tripped. 2. AutoGen circuit breaker has tripped. 	<ol style="list-style-type: none"> 1. Correct reason for the trip and reset circuit breaker. 2. Set AutoGen to OFF and then back to AUTO to reset the breaker.

POWER WENT OUT...

Your Automatic Transfer Switch can be used year-round. You will need to monitor it (and your generator), in general, to make sure it remains in working order (the ALL OK light is on, fuel is in the generator, etc.) This would be in addition to the Transfer Switch's monthly cycle test.

Your Transfer Switch would be ready to perform upon a power outage when everything has been done correctly according to your Owner's Manual and the following conditions are met:

- 1) The dedicated load center breaker is ON.
- 2) Your generator is connected to the Automatic Transfer Switch.
- 3) Your Automatic Transfer Switch is in the AUTO position and the ALL OK light is lit.
- 4) The manual transfer switch (or emergency sub-panel) must be able to accept power from the generator (i.e., circuits must be in the GEN position).
- 5) Your generator must be ready to run with fuel in the tank, and its key or run/stop switch in the ON or RUN position.

EMERGENCY MANUAL OPERATION

In the unlikely event that the Transfer Switch fails in such a way that automatic operation does not function, it is possible to manually move the Transfer Switch from UTILITY to GENERATOR position and vice versa.

The indicator knob on the Transfer Switch has a black label which can be broken through with a razor blade to expose a 5/16" hex socket. Using a hex key ("allen wrench"), the socket can be turned in the appropriate direction. Do not force the switch beyond its stop limits or permanent damage may occur.

SPECIFICATIONS & NOTES:

AutoGen Relay Control Ratings

- Three relay outputs: each capable of switching 5 amps to either +12 volts or ground.
- Starter Contactor Rating: 100 amps continuous, 400 amps inrush.

Choke Cable:

Length: 5 ft.

Outer Diameter: 0.190" with 0.25"/0.19" Reducer

Working Movement: 1.1"

NOTE 1:

AutoGen provides a 5' choke remote control cable intended for direct connection to the choke operator on engines having a provision for mounting a choke remote control cable.

Engines without choke remote control cable provisions are not normally compatible with the AutoGen. However, some modification and adaptation of the choke operator may allow compatibility.

NOTE 2:

AutoGen provides three relay-switched outputs to control an engine. For a typical gasoline fueled engine, one of these is connected to the engine RUN/STOP wire, another is connected to an electrical choke (if needed). The third is available to power an additional fuel solenoid (if needed).

SPECIFICATIONS & NOTES: (cont'd)

NOTE 2: (cont'd)

For LP or natural gas fueled engines, one is connected to the fuel supply solenoid and one is connected to the gas primer. The third is not used..

For diesel fueled engines, one is connected to the fuel supply solenoid and one is connected to the glow plug relay. The third is not used.

NOTE 3:

For bonded neutral generators, consult the generator manufacturer to do any altering of the neutral wiring.

NOTE 4:

Slide/rocker switch 4 may be used for generator engines with built-in engine controls.

SUPPORT

Our web site provides support for solving some problems. Our web site address is www.connecticut-electric.com.

Telephone support is readily available on our Technical Assistance Line at 1-800-730-2557.

WARRANTY

Connecticut Electric provides a one year limited warranty for the AutoGen Automatic Transfer Switch. This warranty covers only defects in design and manufacturing and does not cover improper installation, abuse or damage caused by lightning or other power surges.

Connecticut Electric does not warrant the applicability of AutoGen for any particular setting or application. In no event will Connecticut Electric be responsible for any indirect, incidental or consequential damages resulting from failure of AutoGen.

WARRANTY (cont'd)

The AutoGen Automatic Transfer Switch is intended solely for use in normal residential and small commercial settings. The AutoGen Automatic Transfer Switch is not designed for use in, and is not warranted for use in, any application where a loss of power would pose a risk of death, personal injury or severe property damage ("Critical Application"), including but not limited to, life-support applications. Use of the AutoGen Automatic Transfer Switch in any such Critical Application is understood to be fully and solely at the risk of Buyer. In the event of a failure of an AutoGen Automatic Transfer Switch being used in a Critical Application, the liability of Connecticut Electric & Switch Manufacturing Company

shall be limited to repair or replacement of the AutoGen Automatic Transfer Switch under the warranty terms.

Please fill out and mail the enclosed warranty card.

WARRANTY RETURNS

Do not return to the seller! To return an AutoGen unit under the terms of our limited warranty, please call our Customer Service number 1-800-472-3819 to obtain a Return Authorization Number. Pack the unit securely and write your return authorization number on the outside of the package. Returns will not be accepted without a return authorization number.

Address your shipment to:

Connecticut Electric & Switch Mfg. Co.
5508 – 128th Street East
Puyallup, WA 98373

Thank you for purchasing the AutoGen[®] Automatic Transfer Switch! It will provide you years of comfort in times of those uncontrollable power outages!

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