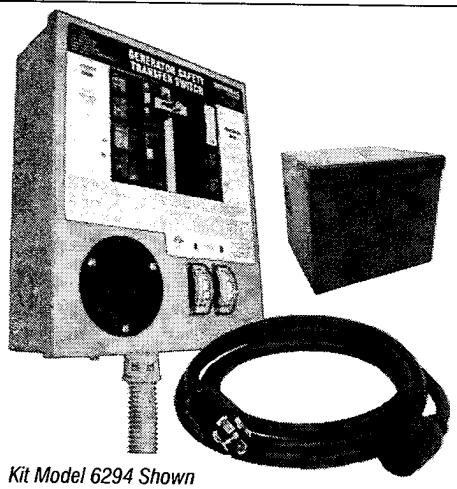
Installation and Operating Instructions

MANUAL TRANSFER SWITCH - MODELS 6294, 6408 and 6376

GENERAC
GenTran Series

WARNING: *Generac® transfer switches should be installed by a professional electrician familiar with electrical wiring and codes, and experienced in working with generators. Generac accepts no responsibility for accidents, damages or personal injury caused by incorrect installation. This transfer switch is intended for surface mounting INDOORS only. Our transfer switches are UL listed to UL 1008 and meet the criteria of National Electrical code Article 702.6 for Optional Standby Systems.* ***CAUTION:*** *If using the generator and transfer switch for larger appliances, such as electric water heaters, clothes dryers, electric ranges and small air conditioners, check the labels on the appliances to be sure they do NOT exceed the rating of the generator. No appliance should have an amperage rating that exceeds the individual breaker rating in the transfer switch (20 or 30 amps).*
CALIFORNIA PROPOSITION 65 WARNING: *Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm. This product may contain or emit chemicals known to cause cancer, birth defects and other reproductive harm.*



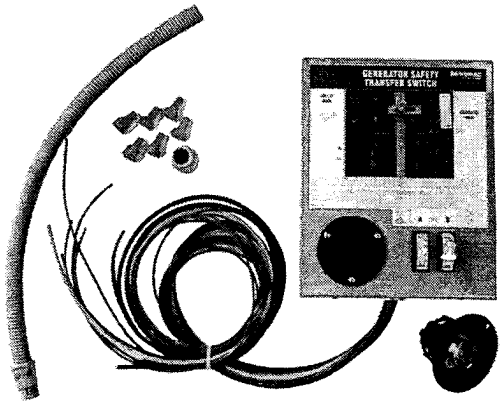
Kit Model 6294 Shown

Thank you for purchasing a Generac Transfer Switch to safely connect a portable generator to the load center in your home or business (single phase only) for standby power applications. Product features include:

- *Generator and Utility feeds mechanically interlocked to prevent dangerous utility or generator back feeding – thereby avoiding property damage and serious injury to electrical workers.*
- *Pre-wired for fast, easy connection to the load center.*
- *Each model can be expanded to up to 10 circuits using standard interchangeable type circuit breakers. See Step 2, Section III.*
- *Accommodates GFCI and Arc-Fault breakers to meet the latest NEC requirements.*
- *Dual wattmeters help you monitor and balance the loads on your generator, prolonging generator life.*
- *Safe generator connection – Install the Power Inlet Box in a convenience location outside for a quick cord connection to your generator.*
- *Surface Mount enclosure indoors. Not approved for outdoor installation.*
- *Accepts Switched Neutral Kit (model 6297) for neutral bonded generators.*

What is Included in this Carton:

- Manual Transfer Switch with wire harness, conduit, fittings and wire connectors (6)
- 30 Amp Power Inlet Box (Kit Models 6294 and 6408 only)
- 10 Foot Power Cord with L14-30 male and female ends (Kit Models 6294 and 6408 only)
- L14-20 male plug (Kit Model 6408 only)
- 30 amp Flanged Inlet (inside Model 6376 only. Not included with 6294 and 6408)
- Installation Manual and Warranty Registration card



Tools and Items Needed for Installation:

- ¼" nut driver, 2-1/8" hole saw (if flush mounting)
- Screwdrivers, straight blade and Phillips
- Electric drill, drill bits, wallboard saw
- Wire cutter/stripper
- Safety eye goggles
- Anchors and screws to mount transfer switch to wall
- New 60A 2-pole, 240V circuit breaker to install in main load center – should be same manufacturer as existing load center.
- 10 gauge 4-wire building wire and conduit to connect between power inlet box and transfer switch

Optional Items for Installation:

- Arc-fault, GFCI or Surge protection circuit breakers. 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 manual transfer switch. You may be able to re-use your existing AFCI, GFCI and Surge protection circuit breakers in the manual transfer switch. See list of compatible breakers below.
- Wire, fittings and conduit to connect the Power Inlet Box to the transfer switch
- White, green, black and red THHN or MTW wire, 10 AWG, 300V rated
- Switched Neutral Kit (Model 6297). If your portable generator has the neutral bonded to the frame of the generator, you will need to install the Switched Neutral Kit accessory with your transfer switch.

NOTE ON NEUTRAL BONDED GENERATORS: Some portable generators are intended for use on jobsites, and therefore are subject to OSHA regulations for GFCI protection on all receptacles. These "contractor grade" generators have their neutral wire bonded to the ground wire to pass OSHA inspection on job sites, and when connected to a transfer switch, this may cause nuisance tripping of the generator GFCI breaker. If you're using a neutral bonded generator to power a house or building through a transfer switch, then determine if the neutral bond wire on the generator can be disabled without voiding the warranty, preferably by a dealer or a qualified electrician. NOTE: After this action, the generator will no longer pass OSHA inspection on job sites. Consult the manufacturer of your generator to determine if the neutral bond can be removed. If it can be disabled, then no modifications to your transfer switch installation are needed. If the neutral bond cannot be disabled or voids the generator warranty, you must install a Switched Neutral Kit (model 6297) accessory with your transfer switch.

Compatible Circuit Breakers:

- Siemens/Murray QT, QPH, HQP, QPF (GFCI), QPHF, QFP, QE, QEH, QAF (Arc Fault), QP (Surge Protector)
- Cutler-Hammer Series BD, BR, BQ, GFC
- Challenger Type A, C, HAGF
- Square D Series HOM (Homeline)
- GE Series THQL

TABLE 1 - SPECIFICATIONS

Model:	6294, 6408, 6376
# Circuits Provided on Transfer Switch	6
Max # Circuits	10
REQUIRED BREAKER FOR MAIN LOAD CENTER (not included)	60 amp 2-pole
Utility Main Breaker	60 amp 2-pole
Generator Main Breaker	30 amp 2-pole
Breakers Provided with Unit	2 – 15 amp 1-pole, 2 – 20 amp 1-pole, 1 – 20 amp 2-pole
Max GEN Watts	7500 continuous / 9000 surge
Max GEN Amps	30 Amps
Voltage	125/250 Volts
NEMA Type Enclosure	1 – Indoor Only
NEMA Configuration of Male Inlet in Power Inlet Box	L14-30
Phase	1
Minimum Gauge Cord Size	10/4

Note:* *If Ground Fault Circuit Interrupters (GFCI), Arc Fault Circuit Interrupters (AFCI), or Surge Protector Circuit Breakers were used as the branch circuit protector in the main load center, they MUST be used in the transfer switch. GFCI and AFCI breakers require an isolated neutral connected from the load to the GFCI or AFCI. The load neutral needs to be connected with a wire nut to a 3-6 foot piece of white wire, run through the harness conduit to the transfer switch and connected to the "load neutral" lug or pigtail on the GFCI or ACFI breaker.* ***Because GFCI and AFCI circuit breakers can take up more than one space, the overall maximum number of circuits may be reduced from the number shown. Not all brands of GFCI and Arc Fault breakers will fit.*

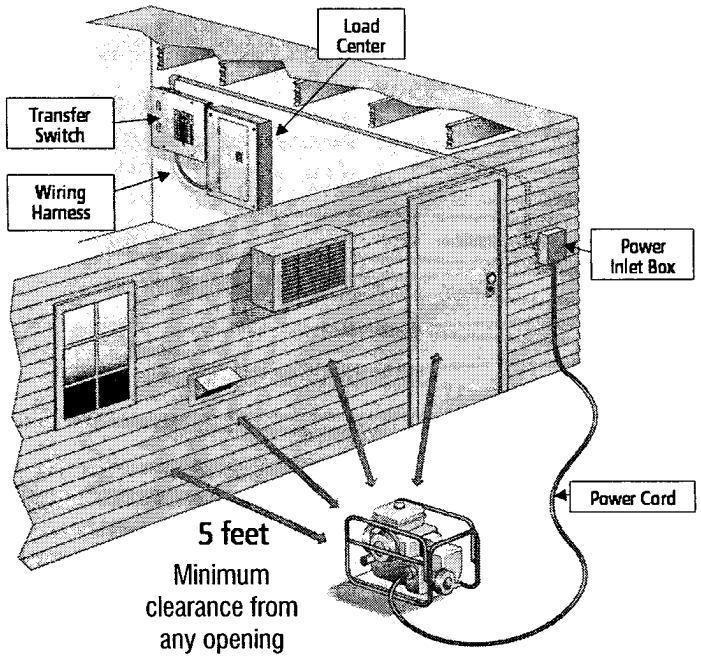
STEP 1: PLANNING YOUR INSTALLATION:

1. Determine the appliances, circuits or equipment you want to operate with generator power during a power outage, such as:

- Refrigerator/Freezer
- Furnace Blower (gas/oil only)
- TV / Radio
- Lighting
- Water Heater
- Garage Door Opener
- Microwave, Coffee Maker
- Well Pump
- Security System
- Sump Pump
- Computer, Fax and Printer, Phone
- Aquarium

2. Determine the amps required for each appliance by reading the label on the appliance. IMPORTANT: No appliance should have an amperage rating that exceeds the GEN MAIN breaker rating in the transfer switch (See Table 1). The total amperage of all circuits can exceed the generator rating, but not all circuits will be able to be used concurrently.
3. Assign the circuit # in the load center to a circuit (A2, B2, etc.) in the transfer switch matching the size of the circuit breaker in the load center to the circuit breaker in the transfer switch. Once you've determined which circuits you want to connect and the appropriate amperage, you will be ready to begin installing your transfer switch.
4. The location of your load center/electrical panel in your home or business will determine where the transfer switch will be installed. Refer to the illustrations below. In addition to the transfer switch, you may need additional accessories to complete your generator transfer switch installation, such as a generator cord and power inlet box. Use the generator cord to connect your generator to the power inlet box outdoors. NEVER run a generator in an enclosed area! If your load center is in a basement or interior room, you should install a power inlet box on the exterior of your house or building to avoid running the generator cord through a door or window. Once you have all of the essential components for your specific needs, you may proceed with the installation.
5. Determine where you will install the power inlet box on an exterior wall <u>at least</u> 5 feet from any openings (doors, windows, vents, etc.). See Figure 1, below.

FIGURE 1: TYPICAL INSTALLATION:



⚠ DANGER

Using a generator indoors CAN KILL YOU IN MINUTES.

Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.

NEVER use inside a home or garage, EVEN IF doors and windows are open.

Only use OUTSIDE and far away from windows, doors, and vents.

TABLE 2 – CIRCUIT WORKSHEET

Circuit	Amperage	Appliance(s) or Circuits
A4	15A	
B4	15A	
A5	20A	
B5	20A	
A6	20A	
B6	20A	

STEP 2: INSTALLATION PROCEDURE:

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 HAZARDOUS VOLTAGES.* ***TURN OFF THE MAIN CIRCUIT BREAKER IN THE LOAD CENTER BEFORE STARTING INSTALLATION.***

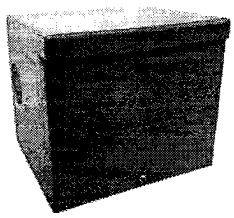
I. TRANSFER SWITCH INSTALLATION:

1. Select a location on the left or right side of the load center to mount transfer switch, as it is provided with a 24" flexible conduit wiring harness. Remove the front cover of the load center, save the screws. Locate and remove a knockout (KO) on the lower side of the load center that matches the conduit fitting size on the wiring harness.
2. Determine if the wiring harness needs to be shortened. If so, remove the wires from the wiring harness and cut conduit to desired length. *[NOTE: The Electrical Non-Metallic Tubing (ENT) provided is UL Listed and recognized by the National Electrical Code (NEC). However, some local codes and inspectors may prohibit its use in buildings that exceed (3) floors above grade.]*
3. Attach the wiring harness to the load center; hold the transfer switch in position against the wall on which it is to be mounted and using the provided template, mark the holes on the wall for the anchoring screws and anchor transfer switch to wall (anchors not provided).
4. Remove transfer switch cover, save screws, allow the cover to hang down, supported by the wattmeter wires.
5. Install appropriately sized conduit, fittings and wire between the Power Inlet Box (PIB) mounted on the building exterior and the transfer switch, referring to section III – Power Inlet Box installation instructions below. Locate and remove a KO in the transfer switch, pull wire into transfer switch enclosure and secure wire with fitting.
6. Using provided wire connector, connect the generator green ground wire with the green wire inside the transfer switch. Connect the generator white neutral wire into neutral bar on the left. Using provided wire connectors, connect the generator black wire to black wiring going to Meter "A". Repeat for generator red wire to Meter "B". See FIGURE 2 WIRING DIAGRAM. Reinstall transfer switch cover.
7. In the main load center, remove the wires from the breakers for the loads that will be relocated to the transfer switch. Cut each blue harness wire (A4-B6) to a convenient length, strip off 5/8" insulation and connect to the wires removed from the breakers per TABLE 2 with the provided wire connectors.
8. Remove two adjacent single pole breakers from which the load wires were removed and install the NEW 60A 2-pole circuit breaker (as required in the Other Items Needed section) in their place. Insert the unmarked BLACK wires from the harness into the new circuit breaker. Terminate the WHITE and GREEN wire in the harness in an open position in the Neutral and Ground bars respectively. If there is no separate ground bar, insert the GREEN wire into an open position in the NEUTRAL bar, and tighten.
9. Reinstall the main load center dead front cover, and turn ON the MAIN breaker in the main load center. Turn ON all branch circuit breakers in both panels. Turn ON the UTIL MAIN in the transfer switch. Check that power is restored to all appliances. Installation is now complete.

II. EXPANDING OR RECONFIGURING YOUR TRANSFER SWITCH:

This transfer switch ships from the factory with certain popular branch circuit breaker sizes. However, the circuit breaker assortment can be modified to suit specific requirements, and this <u>does not</u> void the UL Listing. For example, if the 2-pole 20 amp circuit breaker is not needed, it may be removed from the panel and replaced with any combination of the following: two separate full size breakers, two tandem breakers, one full size and one tandem, or a triple/quad breaker. If additional circuits are added, the installer is responsible for providing appropriately sized wire(s) for each circuit.

III. INSTALLING THE POWER INLET BOX (Models 6294 and 6408 Only)



1. Remove the front cover of the power inlet box. Remove the 3 screws that secure the flanged inlet to the bottom plate. For installations where side clearance exceeds 12" on both sides, remove the 4 screws that secure the bottom plate to the box.
2. Mount the power inlet box on the outside of the building in a convenient location (minimum 24" above grade), using the four holes provided in the back of the enclosure. Use sealant around the anchoring screws to keep water from entering the box at these mounting holes. Using approved wiring methods, install the wiring through one of the knockouts provided in the enclosure. Be sure to seal around the hole in the building where the conduit enters through the wall.
3. Extend wiring inside the power inlet box approx. 8" from the point of entrance. Attach green or bare ground wire to green lead provided in power inlet box with wire nut (provided by installer). Strip and insert incoming leads into terminals on flanged inlet. Insert white wire (neutral) into nickel-plated screw terminal or white marking on the flanged inlet.
4. Carefully fold wires into the enclosure and reattach the bottom assembly or inlet onto box with screws removed earlier. Installation is complete.

STEP 3: USING YOUR TRANSFER SWITCH:

DANGER *NEVER run portable generators indoors or in garages, basements, or sheds. Portable generators should always be used at least 5 feet away from windows, doors, vents, or any other opening. Carbon Monoxide (CO) from a generator is deadly and can kill you in minutes. Read and follow all generator directions before use.*

A. Transferring from Utility Power to Generator Power:

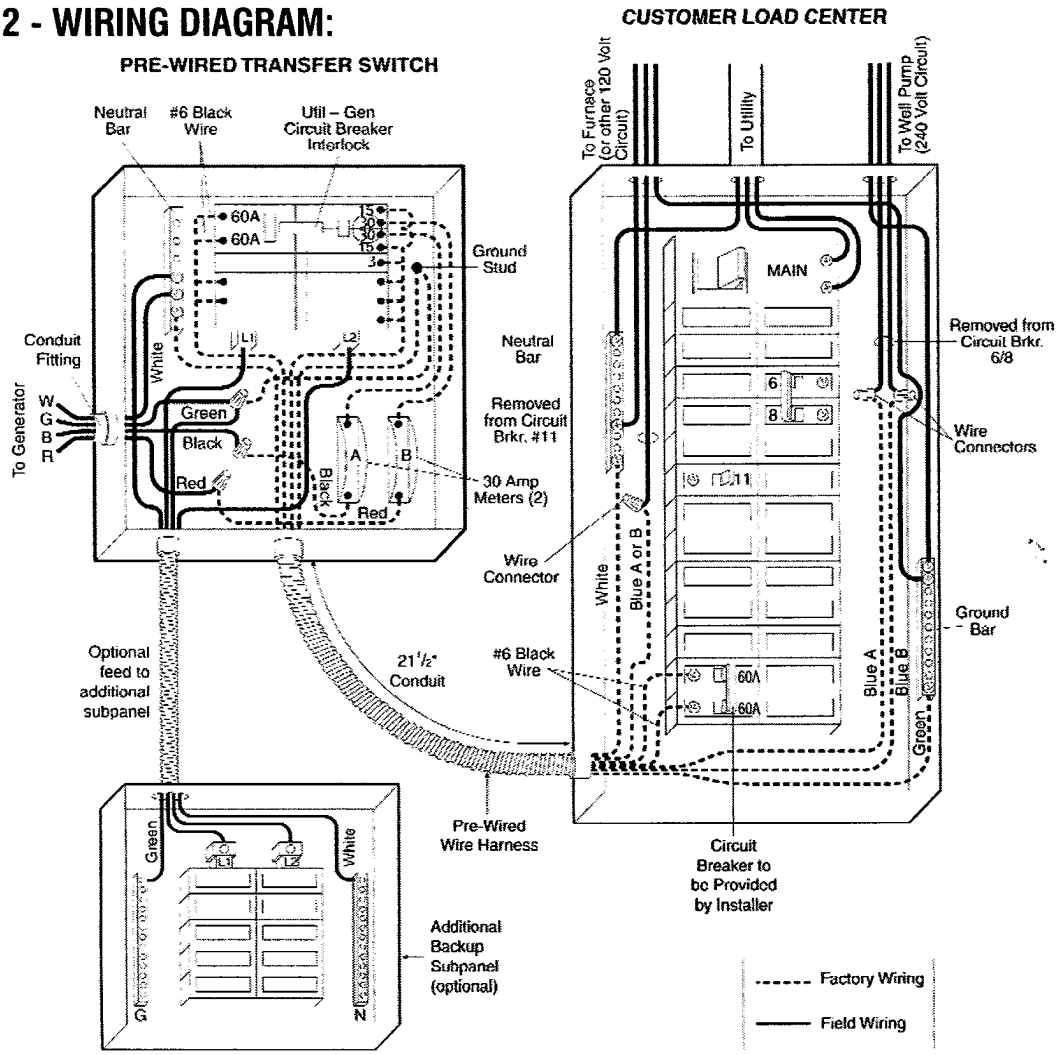
1. Move generator outdoors.
2. Connect male plug of Power Cord into 125/250V receptacle on the generator. Turn ON circuit breaker for the outlet plugged into.
3. Plug in female connector of the Power Cord to the Power Inlet Box or Flanged Inlet on front of transfer switch (if installed). Turn all circuit breakers in the transfer switch to their OFF position.
4. Start the generator outdoors, following the procedures described in the generator's owner's manual. Turn ON the GENERATOR MAIN circuit breaker in the transfer switch. Turn ON circuit breakers in the manual transfer switch one at a time alternating from phase "A" and phase "B". Watch the meters as you turn on successive circuits so that the meters do not continuously exceed the maximum wattage of the generator. It may be necessary to alternate the use of larger loads (furnace motors, well pumps, freezers, etc.) to avoid overloading the generator. To promote generator life, loads should be balanced on Phase "A" and "B" so that the wattage reading on each meter is within about 1000 watts of the other.
5. Test your circuits by using the wattmeters or determine wattage from that shown on each appliance. Make a note of any excessive loads which must be removed from a given circuit during generator operation in an emergency. [Note: Wattmeters do not show power at very low levels.]

B. Transferring from Generator Power to Utility Power:

1. On the transfer switch, turn the GENERATOR MAIN breaker OFF. Then shut down the generator, following the procedures in the generator Owner's Manual.
2. On the transfer switch, turn the UTILITY MAIN breaker ON. Then Turn ON any branch circuit breakers in the transfer switch that are OFF.
3. Unplug the power cord from the generator and the power inlet.
4. Cool off the generator and store in a dry, secured location.

To ensure that your generator will work properly when you need it, it is important to start and run your generator under load regularly and keep the tank filled with fresh fuel. Perform the above steps at least ONCE A MONTH to keep the generator properly "exercised." It is not necessary to turn off any circuits in the MAIN load center when operating/testing the transfer switch.

Figure 2 - WIRING DIAGRAM:



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Generac Power Systems, Inc.
Toll Free: 1-888-GENERAC
www.generac.com
0196990SBY
PN 500507 Rev D