

SENTRY-PRO

ELECTRIC GENERATOR POWER SYSTEMS OWNER'S GUIDE

CAUTION:

This manual and the manufacturer cannot possibly anticipate every possible happening that might involve a hazard. The Listings, Warnings, and Cautions in this manual and on tags and decals affixed to the equipment are therefore, NOT ALL INCLUSIVE. If a certain procedure, work method, test method, or operating procedure that is not recommended by this manufacturer, is used, the person or company responsible for the gen-set modification, must assume all responsibility for safety and correct operation for the operator and all others within general gen-set area. Read your generator and engine operator's manuals carefully. Know your equipment before you use it. Consider the application, limitations, and potential hazards, before operating the gen-set.

DEFINITION OF OPERATION

- Intermittent operation (also identified as "standby" or "maximum" ratings): These ratings apply where load engine varies, and engine runs at wide open throttle. No more than ten minutes of full load operation within hour of continuous operation, is allowed. No overload is available at this rating.
- Continuous operation (also identified as "rated" power output): These ratings are reduced by 10% from ratings explained in (A) above. Overloads of 10% are available within ten minutes of each hour, of engine continuous use.

PERFORMANCE DERATING

- When matching a gen-set to a specific application, whether gross intermittent or gross continuous ratings are used, it is important to derate output for the following adverse conditions:
- Engine horsepower rating after "break-in" is usually within (3%) of name plate HP rating.
- Exhaust system losses occur with inadequate mufflers or long exhaust systems which tend to reduce the engine HP, therefore directly reduce the electrical output.
- Temperature and altitude directly de-rate engine HP ratings. Therefore, de-rating total KW output by same amount. Derate 3 1/2% for each 1000 ft. above 328 ft. over sea level. Derate 1 % for every 10° F above an ambient temperature of 77° F.
- Fuel quality variations will reduce engine HP output, therefore directly reduce electrical output.
- Normal wear and poor maintenance will reduce engine HP, therefore directly reduce electrical output.

resuscitation) and call for medical help immediately.

REGARDLESS OF THE SAFE DESIGN OF THIS EQUIPMENT, THE OPERATOR MAY BE INJURED OR DEATH MAY OCCUR IF CARELESS, IMPRUDENT OPERATION TAKES PLACE OR IF A NEGLECT OF MAINTENANCE OCCURS. THE GENERATOR DEVELOPS ENOUGH ELECTRICAL POWER TO CAUSE A FATAL SHOCK. FAULTY APPLICATION AND INSTALLATION OF ANY GENERATOR SET CAN LEAD TO SEVERE PERSONAL INJURY, DEATH AND/OR PROPERTY DAMAGE. FIRE, MECHANICAL OR STRUCTURAL BREAKDOWN, ELECTROCUTION, AND EXHAUST GAS ASPHYXIATION CAN RESULT FROM FAULTY INSTALLATION. THE INSTALLATION AND APPLICATION OF ANY GENERATOR SET MUST BE PERFORMED BY QUALIFIED PERSONS.

INSTALLATION STANDARDS AND CODES

The following list of standards as issued by the National Fire Protection Association (NFPA) pertains to the installation and operation of this generator set. These standards and codes can change and may vary by location or over time.

STANDARD NUMBER	TITLE
NFPA #37	Combustion Engines
NFPA #70	National Electrical Code
FPA #99	Health Care Facilities
FPA #101	Life Safety Code
NFPA #110	Emergency & Standby Power Systems

Local, State, and National Electrical building codes must be followed. Occupational Safety and Health Administration (OSHA) established regulations must be followed. Nothing must be done to alter the design or operation of the generator set to render it non-compliance with such mandated codes, regulations, laws, and standards.

GENERAL INFORMATION

INTRODUCTION: This owner's manual is prepared especially for the emergency electric power plant (generator) that is intended to be a temporary source of electric power where normal power does not exist. The gen-set can also serve as a standby power system to utility power, with addition of an automatic transfer switch and automatic start stop controller or manual transfer switch, with manual operation. This manual will also familiarize personnel with its design, installation, connection and operation. Every effort is used to ensure that the contents in this manual are both accurate and current. However, manufacturer reserves the right to change, alter, modify, update, and otherwise improve the generator set without prior notice.

GENERATOR SET DESCRIPTION: This equipment is a generator driven by a diesel, gasoline, or dry fueled engine. It is for production of electric power designed to supply emergency electricity in the event that normal utility electric power is lost, not available, or is not practical to use. (Special applications are available where gasoline driven units are required. Consult factory for details).

GENERATOR SET FEATURES: Included with this 1 piece system are the following:

- ♦ Exhaust silencer (muffler) installed or furnished loose for installation by others (depending on model and KW size).
- ♦ Battery rack and battery cables (starting battery must be furnished by installer)

♦ **OPTIONAL** 12 VDC battery charger for 1800 RPM units.

♦ **OPTIONAL** AC engine crankcase oil heater to warm the engine oil in areas where severely cold weather occurs.

♦ **OPTIONAL** AC engine coolant heater to warm the engine block in areas where severely cold weather occurs.

♦ **OPTIONAL** AC battery heater to warm the starting battery in areas where severely cold weather occurs.

♦ **OPTIONAL** U.L.-142 CERTIFIED DIESEL FUEL TANKS.

♦ Hour meter records actual run time and helps schedule maintenance work.

♦ Special engine starter motor cut-out control automatically disengages starter system from engine flywheel upon successful engine starting thereby saving starting components from damage due to accidental start error by operator

♦ **Low Oil Shutdown protection.** If oil pressure falls below acceptable level, this safety device will shut down the entire system and will not restart until oil level is restored

♦ **Over Speed Shutdown Protection.** If engine should run beyond it's design speed, this safety device will shut down the entire system before "Over Speed" can destroy electronic and mechanical components.

♦ **High temperature Shutdown protection** on all liquid cooled gen-sets. If engine coolant temperature level rises above acceptable level, this safety device will shut down the entire system and will not restart until proper coolant temperature is restored.

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OPERATING INSTRUCTIONS FOR SP SERIES, 1 PH. & 3 PH., 1800 RPM, ENCLOSED AND OPEN SENTRY-PRO GEN-SETS

PREPARATION BEFORE START

Prior to initial start-up and testing, make sure the system has been properly installed and interconnected. After a thorough inspection, prepare the system for use as follows:

1. Keep the System Control toggle Switch, located to the left side of the **Sentinel-Scout** control panel, in the (System-Off) position at all times, while connections, battery installation, or any other installations take place. The System Control toggle Switch placed in (System On) position during this time may cause an unwanted engine crank action. (See Page 3)

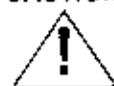
2. Check engine crankcase oil level. The engine crankcase is factory filled with "break-in" oil. Replace this "break-in" oil after 25 hours of operation. If necessary, add the recommended oil to full level only. **DO NOT OVERFILL ABOVE FULL LEVEL.** Always refer to oil dip stick in determining full oil level. Read engine manual carefully for all engine manufacturer's recommendations. It is recommended to use mobile 20 WT "Synthetic" lubricating oil in your engine crankcase, when dry fuel carburetion is used. This gives better starting in cold climates.

3. Check radiator fluid level on generator sets that are liquid cooled. The radiator was factory filled with a 50% mixture of water and anti-freeze. Fill radiator to full level only if level is low. **DO NOT OVERFILL ABOVE FULL LEVEL.**

4. Be familiar with the function and operation of the automatic transfer switch. Review the Transfer Switch Operator's Manual.

DANGER!

BE EXTREMELY CAREFUL. YOU ARE READY TO TEST RUN A GENERATOR THAT HAS BOTH ELECTRIC SHOCK AND FLAMMABLE FUEL POTENTIAL HAZARDS. CHECK AND REVIEW ENTIRE INSTALLATION BEFORE START-UP.

CAUTION!

MAKE SURE THAT RATING OF TRANSFER SWITCH, MATCHES THE RATING OF THE EMERGENCY GENERATOR, IN VOLTS, PHASE, AND FREQUENCY. MIS-MATCHED SPECIFICATIONS WILL CAUSE EQUIPMENT DAMAGE.

OPERATING INSTRUCTIONS

NOTE : Before starting it is assumed that commercial power is not yet turned on and the fully charged, 12 VDC battery is installed in the engine compartment. Locate the Sentry-Pro **Sentinel-Scout** control box and become familiar with its on-off toggle switch and control buttons. (SEE PAGES 3 & 4), plus operator's manual for **Sentinel-Scout**.

INITIAL SET-UP SEQUENCE AND MANUAL TEST OPERATION ON ASCO TRANSFER SWITCHES

Local Test at the Genset

STEP 1. Begin by checking that the System Control toggle Switch on the **Sentinel-Scout** control panel on the Sentry-Pro standby generator is in the "System-Off" position. Follow the directions included with the particular ASCO or DYNAGEN transfer panel equipped in this installation for the initial transfer panel controller set-up. Then apply utility power to the transfer panel.

DANGER!

PROCEED WITH CAUTION. THE CONTROL PANEL IS NOW "LIVE" WITH UTILITY POWER CONTACT WITH THESE "LIVE" TERMINALS INSIDE TRANSFER SWITCH AND GENERATOR CONTROL PANEL WILL RESULT IN EXTREMELY HAZARDOUS SHOCK AND POSSIBLE DEATH WILL RESULT.

STEP 2. Locate the membrane push button "0" located on the front of the **Sentinel-Scout** module (far left). Pressing this button places the **Sentinel-Scout** controller in the "0" or "off" position. If it is not already set that way, firmly press this button to set the controller to this "Off" position. Now, turn System Control toggle Switch on the Sentry-Pro standby generator (which is still in the "System-Off" position) to the "System-On" position. The Runtime Meter on the **Sentinel-Scout** control module will turn on and display the Runtime Hours. This shows the presence of battery power and indicates a ready state of the automatic engine control unit. Now proceed with Step 3.

STEP 3. At this point we will establish the first engine start cycle. Locate and firmly press the "manual" mode push button located on the front of the **Sentinel-Scout** module (indicated with a "M" symbol.) In this position, with the System Control toggle Switch in the "System-On" position, the engine controller will initiate the actual manual start. The generator should crank over and start up and run. Allow the engine to run for approximately 2 minutes. Then firmly press the membrane push button "0" located on the front of the **Sentinel-Scout** module (far left). The engine will shut down.

STEP 4. At this point we will set the **Sentinel-Scout** controller in the "Automatic" or "standby" mode. Locate the "Auto" push button located on the front of the **Sentinel-Scout** module. Pressing this button with the System Control toggle Switch in the "System-On" position places the **Sentinel-Scout** controller in the standby watch condition waiting for a signal to startup and run the engine/generator system. Firmly press the "Auto" push button. This places the controller in the "Automatic" or "Standby" mode indicated by a red lamp next to the "Auto" push button. Upon receiving an external start signal and after a 10 second time delay, (or no

time delay if genset is specified as such) the generator should crank over and start and remain running until the start signal is removed. At this time, the engine will continue to run for an additional 2 minute cool down cycle and then shut down.

Unless especially factory ordered prior to installation, the transfer panel will not transfer the chosen electric load from utility power to generator power during this testing or during automatic exercising operation. The transfer switch will transfer the load to the generator only during an actual utility power loss.

Step 5. During this Initial testing time, it is advised to test the voltage at no-load conditions, and at full load conditions.

Repeat the manual start process using the **Sentinel-Scout** controls. Locate and firmly press the "manual" push button located on the front of the **Sentinel-Scout** module (indicated with a "M" symbol.) In this position, with the System Control toggle Switch in the "System On" position, the engine controller will initiate our first start. The generator should crank over, start up, and run.

Leave the controller in the "Manual" position at this time.

Allow engine to run un-loaded for 5-10 minutes to warm up. This gives installer time to perform certain quality tests. Use an AC Voltmeter and AC Frequency Meter to test the no load generator voltage and frequency at no load conditions. (see chart A on page 5)

THE ELECTRIC LOAD TO BE APPLIED TO GENERATOR SET MUST NEVER BE MORE THAN GENERATOR RATING. THE GENERATOR IS RATED IN WATTS. CALCULATE THE ELECTRICAL LOAD TO BE APPLIED TO GENERATOR IN WATTS. NEVER EXCEED 75% OF GENERATOR RATING IN ACTUAL CONNECTED LOAD.

CAUTION!



**INITIAL SET-UP SEQUENCE AND
AUTOMATIC TEST OPERATION
ON ASCO TRANSFER SWITCHES**

At this point we will set the **Sentinel-Scout** controller in the "Automatic" or "Standby" mode. Locate the "Auto" push button located on the front of the **Sentinel-Scout** module. Pressing this button with the System Control toggle Switch in the "System On" position places the **Sentinel-Scout** controller in the standby watch condition waiting for a signal to startup and run the engine/generator system. Firmly press the "Auto" push button. This places the controller in the "Automatic" or "Standby" mode indicated by a red lamp next to the push button. Upon receiving a start signal and after a 10 second time delay, the generator should crank over, start, and remain running until the start signal is removed. While in the "Automatic" mode the installer should cause a loss of utility power to simulate normal loss of power

functions for the final automatic start-stop operation.

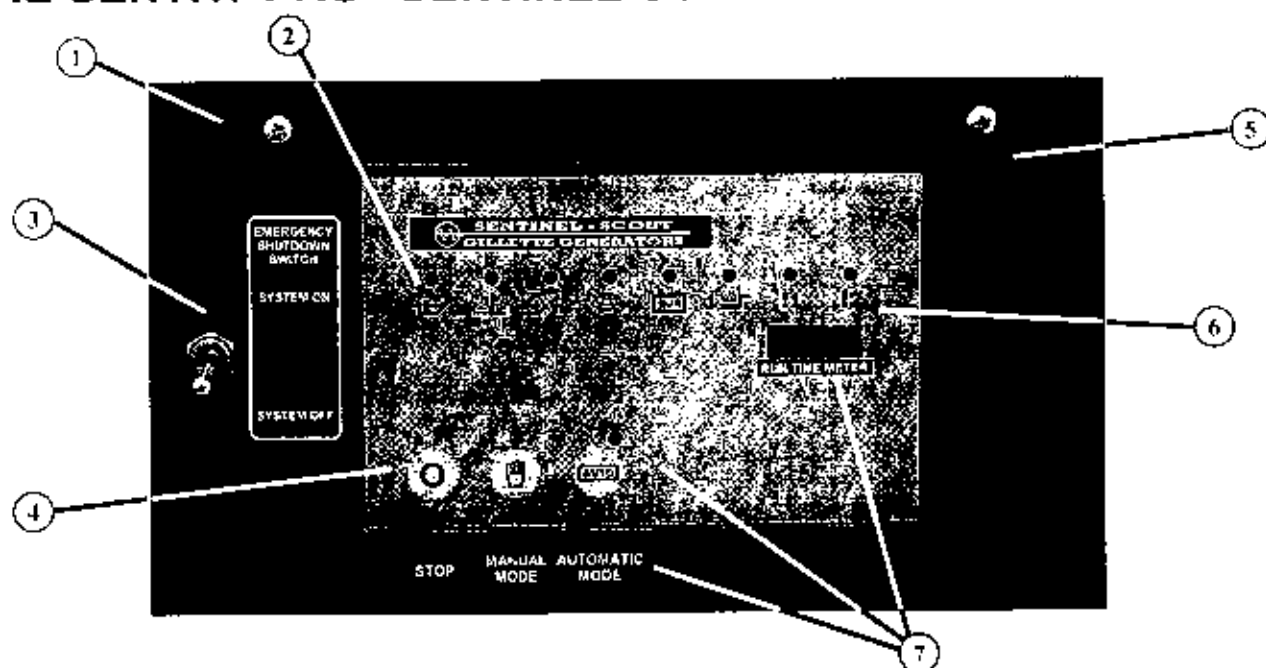
STEP 1. At the loss of utility power, there is a ten second delay (to allow for nuisance 2 to 3 second power interrupts) before the engine cranks over. The cranking cycle will attempt to crank 3 times, 10 seconds cranking and 10 seconds rest between cranks. If the engine should not start by the end of the third cranking cycle, an engine fail condition is indicated by lighting a red LED above the overcrank symbol resembling a step  to indicate this overcrank condition. If a successful start occurs, the **Sentinel-Scout** controller stays online in a run/monitor mode indicated by the Runtime Meter displaying Runtime Hours and all error indicator LEDs are extinguished. Note: Buyer may decide to omit 10 second delay before start, in which case the engine starts immediately, upon demand.

STEP 2. Remove commercial power. After a successful start, and in the absence of commercial power, the transfer panel will transfer the chosen load circuit to the generator. (This transfer action is delayed for 3 minutes if the "Delay Before Transfer" option is ordered and installed on your generator set). This system will remain in this emergency generator mode until utility power is returned. Upon the return of utility power, the transfer panel re-transfers the chosen load to the utility power. (This re-transfer action is delayed for 3 minutes if the "Delay Before Re-Transfer" option is ordered and installed on your generator set). Without this delay feature, both transfer delay functions are immediate.

STEP 3. Restore commercial utility power. After re-transfer, the generator will remain running for an additional approx. 2 minute time period for engine cool down delay, (Total 5 minutes for both "Delay Before Re-Transfer, plus normal "Engine Cool Down" time delays) to allow for the unit to cool down with no load applied. The engine shuts down returning the system to a stand-by condition waiting to respond to the next emergency power failure. The installer should again cause a loss of utility power to simulate normal loss of power functions for the final automatic start-stop operation test.

STEP 4. Repeat the automatic start process. With all emergency electric loads applied to the generator, re-test load voltages and frequency at the same test points in transfer switch. Minimum test values at full load conditions, must be within 5% of no-load test values.

THE SENTRY-PRO "SENTINEL-SCOUT" AUTO-CONTROLLER



Let's take a closer look at what we call the "SENTINEL-SCOUT" controller.

1. The control module mounted within the "SENTINEL-SCOUT" control panel. It's function is to provide auto start-stop and fault conditions.
2. (6) Graphical Icons that represent errors that would shut down the gen-set. Corresponding Red LEDs will light to indicate appropriate shutdown error. (See Page 4 for Legend Display Table)
3. "Emergency/System Shutdown" switch having (2) positions labeled "System-On" and "System-Off", to provide a second means of total non-operation over the stop push button of item
4. (3) Button water proof membrane type "Mode" selector panel provides settings in left to right sequence of: **STOP/Reset**; **MANUAL MODE**; and **AUTOMATIC MODE** for Automatic operation.
5. Steel cabinet for fuses, wiring and possible other optional controls.
6. The **!1** and the **!2** are two auxiliary inputs that can be used for a Shutdown Error or a Warning or both. Only present if this controller is being used on a Diesel Gen-Set.
7. Easy to read legends for function switches and key function indicators on graphic display panel (See page 4 for Legend Display Table)
8. In addition, the **Sentinel-Scout** is compliant to UL requirements. A simple modification will allow additional timers and functions if required, plus there are two controller upgrades to chose from. The **Sentinel-III** will provide more detailed gen-set information that displays values on the LCD Screen. The **Sentinel-IV** will provide even more gen-set information than the **Sentinel-III** with the ability to use telecommunication control and monitoring from any location in the world.

*U.L. 508 Certified, "SENTINEL-SCOUT" Controller
for a more simplistic Gen-Set Controller. Gives the User a fully automatic
Gen-Set Controller with in field programming capability.*

**(Not compatible with Model 548 remote annunciator or Model 157 relay expansion module.)
Remote annunciation is not available with the Sentinel-Scout or Sentinel-III controllers.**

PUSH BUTTONS

Display Symbol	Description	Display Symbol	Description	Display Symbol	Description
	Stop/Reset		Manual Mode		Auto Mode

ALARM INDICATIONS

Display Symbol	Description	Display Symbol	Description	Display Symbol	Description
	Low Oil Pressure		Over-speed		Charge Fail
	High Coolant Temperature		Under-speed		Fail to start (Over-crank)
	Auxiliary Alarm Input 1 (Warning or Shutdown)		Auxiliary Alarm Input 2 (Warning or Shutdown)		

ELECTRIC POWER OUTPUT REQUIREMENTS

Allow engine to run at no load for a 10 minute warm up period. This gives installer time to perform voltage output tests. Use an AC voltmeter and a frequency meter to test no load generator voltage and frequency output at transfer switch points E1, E2, (and E3 for 3 phase), plus neutral bar. Now apply the total chosen emergency loads to generator and take the same voltage and frequency readings at full load. Determine the electric power output requirements of the generator set to be tested. Locate the same power specifications on chart A. The test results must be within the range as shown in chart A. NOTE: Some engines may be equipped with electronic governors. If this is so, the no load frequency should be set at exactly 60 hertz

CHART A

VOLTAGE AND FREQUENCY RATING	VOLT. TEST POINTS ON TRANSFER	MAX. NO LOAD VOLTAGE READING	MAX. NO LOAD FREQUENCY READING	MIN. FULL LOAD VOLTAGE READING	MIN. FULL LOAD FREQUENCY READING
120/240V. 60 HERTZ 1 PHASE	E1 TO E2	238 - 250		220 - 230	
	E1 TO NEUTRAL	119 - 125	61 1/2 - 62	110 - 115	57 1/2 - 58
	E2 TO NEUTRAL				
	E1 TO E2				
120/208V. 60 HERTZ 3 PHASE	E1 TO E3	207 - 209	61 1/2 - 62	206 - 208	57 1/2 - 58
	E2 TO E3				
	E1, E2, E3 TO	118 - 120		117 - 120	
120/240 V. 60 HERTZ 3 PHASE	E1 TO E2	239 - 242	61 1/2 - 62	238 - 240	57 1/2 - 58
	E1 TO E3				
	E2 TO E3				
	E1 OR E3 TO	119 - 121		117 - 120	
277/480 V. 60 HERTZ 3 PHASE	E1 TO E2				
	E1 TO E3	480 - 482	61 1/2 - 62	478 - 480	57 1/2 - 58
	E2 TO E3				
	E1, E2, E3 TO	276 - 278		276 - 277	
110/220 V. 50 HERTZ 3 PHASE	E1 TO E2	225 - 230		215 - 220	
	E1 TO NEUTRAL	112 - 115	51 - 51 1/2	107 - 110	48 1/2 - 49
	E2 TO NEUTRAL				
	E1 TO E2				
110/220 V. 50 HERTZ 3 PHASE	E1 TO E3	220 - 224	51 - 51 1/2	219 - 220	48 1/2 - 49
	E2 TO E3				
	E1 OR E3 TO	110 - 112		108 - 110	
220/380 V. 50 HERTZ 3 PHASE	E1 TO E2				
	E1 TO E3	380 - 383	51 - 51 1/2	378 - 380	48 1/2 - 49
	E2 TO E3				
	E1, E2, E3 TO	220 - 223		219 - 220	
240/416 V. 50 HERTZ 3 PHASE	E1 TO E2				
	E1 TO E3	416 - 420	51 - 51 1/2	414 - 416	48 1/2 - 49
	E2 TO E3				
	E1 OR E3 TO NEUTRAL	240 - 243		238 - 240	



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2. Check engine crankcase oil level. The engine crankcase is factory filled with "break-in" oil. Replace this "break-in" oil after 25 hours of operation. If necessary, add the recommended oil to full level only. **DO NOT OVERFILL ABOVE FULL LEVEL.** Always refer to oil dip stick in determining full oil level. Read engine manual carefully for all engine manufacturer's recommendations. It is recommended to use mobile 20 WT "Synthetic" lubricating oil in your engine crankcase, when dry fuel carburetion is used. This gives better starting in cold climates.

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4. Be familiar with the function and operation of the automatic transfer switch. Review the Transfer Switch Operator's Manual.

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STEP 2. Locate the membrane push button "0" located on the front of the **Sentinel-Scout** module (far left). Pressing this button places the **Sentinel-Scout** controller in the "0" or "off" position. If it is not already set that way, firmly press this button to set the controller to this "Off" position. Now, turn System Control toggle Switch on the Sentry-Pro standby generator (which is still in the "System-Off" position) to the "System-On" position. The Runtime Meter on the **Sentinel-Scout** control module will turn on and display the Runtime Hours. This shows the presence of battery power and indicates a ready state of the automatic engine control unit. Now proceed with Step 3.

STEP 3. At this point we will establish the first engine start cycle. Locate and firmly press the "manual" mode push button located on the front of the **Sentinel-Scout** module (indicated with a "M" symbol.) In this position, with the System Control toggle Switch in the "System-On" position, the engine controller will initiate the actual manual start. The generator should crank over and start up and run. Allow the engine to run for approximately 2 minutes. Then firmly press the membrane push button "0" located on the front of the **Sentinel-Scout** module (far left). The engine will shut down.

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time delay if genset is specified as such) the generator should crank over and start and remain running until the start signal is removed. At this time, the engine will continue to run for an additional 2 minute cool down cycle and then shut down.

Unless especially factory ordered prior to installation, the transfer panel will not transfer the chosen electric load from utility power to generator power during this testing or during automatic exercising operation. The transfer switch will transfer the load to the generator only during an actual utility power loss.

Step 5. During this initial testing time, it is advised to test the voltage at no-load conditions, and at full load conditions.

Repeat the manual start process using the **Sentinel-Scout** controls. Locate and firmly press the "manual" push button located on the front of the **Sentinel-Scout** module (indicated with a "M" symbol.) In this position, with the System Control toggle Switch in the "System On" position, the engine controller will initiate our first start. The generator should crank over, start up, and run.

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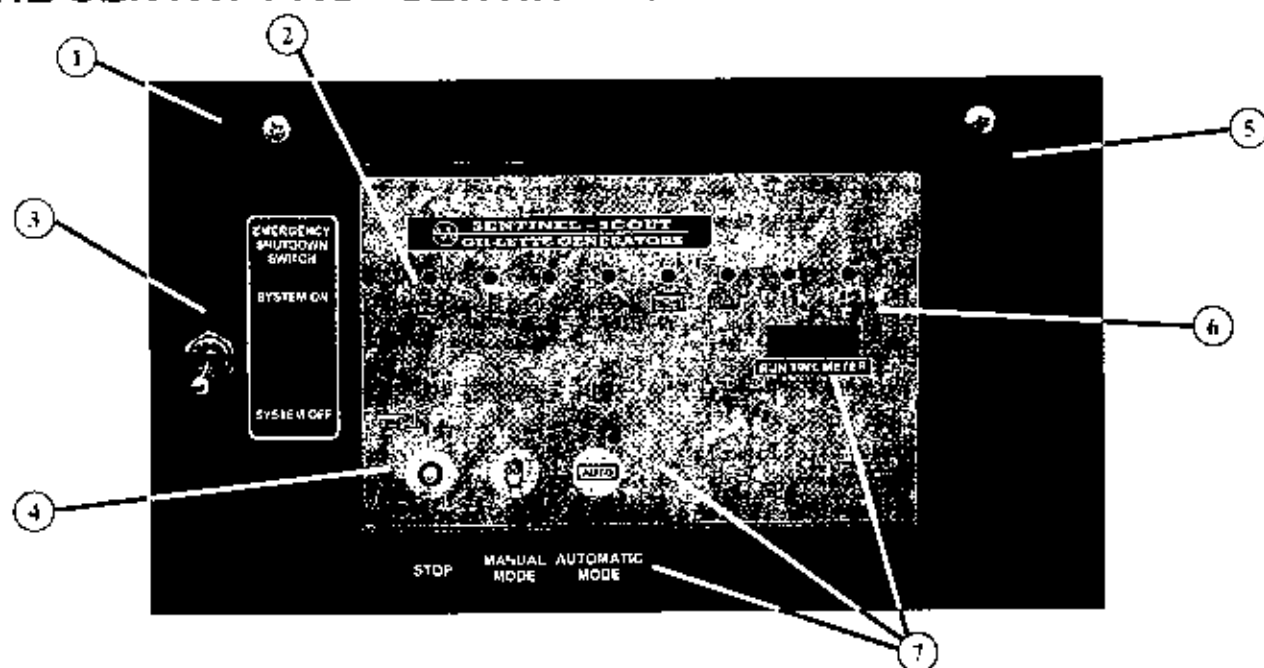
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STEP 2. Remove commercial power. After a successful start, and in the absence of commercial power, the transfer panel will transfer the chosen load circuit to the generator. (This transfer action is delayed for 3 minutes if the **"Delay Before Transfer"** option is ordered and installed on your generator set). This system will remain in this emergency generator mode until utility power is returned. Upon the return of utility power, the transfer panel re-transfers the chosen load to the utility power. (This re-transfer action is delayed for 3 minutes if the **"Delay Before Re-Transfer"** option is ordered and installed on your generator set). Without this delay feature, both transfer delay functions are immediate.

STEP 3. Restore commercial utility power. After re-transfer, the generator will remain running for an additional approx. 2 minute time period for engine cool down delay, (Total 5 minutes for both "Delay Before Re-Transfer, plus normal "Engine Cool Down" time delays) to allow for the unit to cool down with no load applied. The engine shuts down returning the system to a stand-by condition waiting to respond to the next emergency power failure. The installer should again cause a loss of utility power to simulate normal loss of power functions for the final automatic start-stop operation test.

STEP 4. Repeat the automatic start process. With all emergency electric loads applied to the generator, re-test load voltages and frequency at the same test points in transfer switch. Minimum test values at full load conditions, must be within 5% of no-load test values.

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Let's take a closer look at what we call the "SENTINEL-SCOUT" controller.

1. The control module mounted within the "SENTINEL-SCOUT" control panel. It's function is to provide auto start-stop and fault conditions.
2. (6) Graphical Icons that represent errors that would shut down the gen-set. Corresponding Red LEDs will light to indicate appropriate shutdown error. (See Page 4 for Legend Display Table)
3. "Emergency/System Shutdown" switch having (2) positions labeled "System-On" and "System-Off", to provide a second means of total non-operation over the stop push button of item
4. (3) Button water proof membrane type "Mode" selector panel provides settings in left to right sequence of: **○** Stop/Reset; **(M)** "Manual Start" Mode; and **(A)** for Automatic operation.
5. Steel cabinet for fuses, wiring and possible other optional controls.
6. The **I1** and the **I2** are two auxiliary inputs that can be used for a Shutdown Error or a Warning or both. Only present if this controller is being used on a Diesel Gen-Set.
7. Easy to read legends for function switches and key function indicators on graphic display panel. (See page 4 for Legend Display Table)
8. In addition, the **Sentinel-Scout** is compliant to UL requirements. A simple modification will allow additional timers and functions if required, plus there are two controller upgrades to chose from. The **Sentinel-III** will provide more detailed gen-set information that displays values on the LCD Screen. The **Sentinel-IV** will provide even more gen-set information than the **Sentinel-III** with the ability to use telecommunication control and monitoring from any location in the world.

*U.L. 508 Certified, "SENTINEL-SCOUT" Controller
for a more simplistic Gen-Set Controller. Gives the User a fully automatic
Gen-Set Controller with in field programming capability.*

*(Not compatible with Model 548 remote annunciator or Model 157 relay expansion module.)
Remote annunciation is not available with the Sentinel-Scout or Sentinel-III controllers.*

ELECTRIC POWER OUTPUT REQUIREMENTS

Allow engine to run at no load for a 10 minute warm up period. This gives installer time to perform voltage output tests. Use an AC voltmeter and a frequency meter to test no load generator voltage and frequency output at transfer switch points E1, E2, (and E3 for 3 phase), plus neutral bar. Now apply the total chosen emergency loads to generator and take the same voltage and frequency readings at full load. Determine the electric power output requirements of the generator set to be tested. Locate the same power specifications on chart A. The test results must be within the range as shown in chart A. NOTE: Some engines may be equipped with electronic governors. If this is so, the no load frequency should be set at exactly 60 hertz

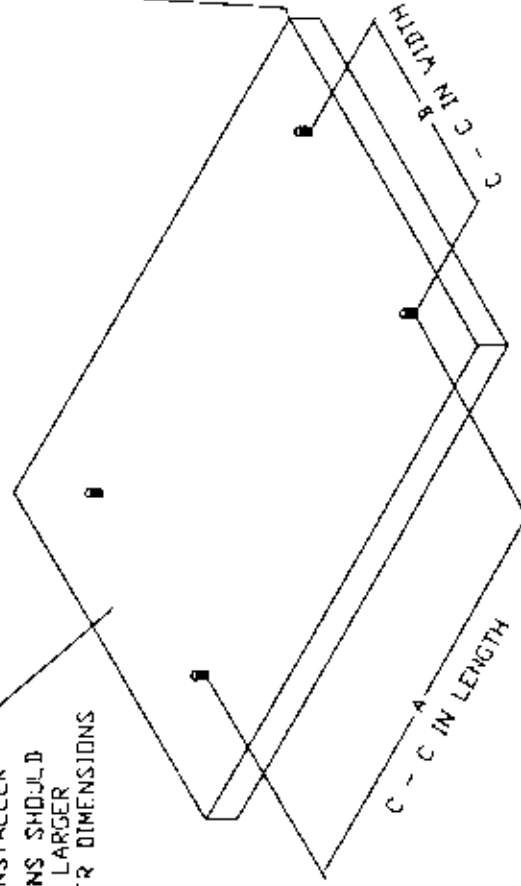
CHART A

VOLTAGE AND FREQUENCY RATING	VOLT. TEST POINTS ON TRANSFER	MAX. NO LOAD VOLTAGE READING	MAX. NO LOAD FREQUENCY READING	MIN. FULL LOAD VOLTAGE READING	MIN. FULL LOAD FREQUENCY READING
120/240V. 60 HERTZ 1 PHASE	E1 TO E2 E1 TO NEUTRAL E2 TO NEUTRAL	238 - 250 119 - 125	61 1/2 - 62	220 - 230 110 - 115	57 1/2 - 58
120/208V. 60 HERTZ 3 PHASE	E1 TO E2 E1 TO E3 E2 TO E3 E1,E2,E3 TO	207 - 209 118 - 120	61 1/2 - 62	206 - 208 117 - 120	57 1/2 - 58
120/240 V. 60 HERTZ 3 PHASE	E1 TO E2 E1 TO E3 E2 TO E3 E1 OR E3 TO	239 - 242 119 - 121	61 1/2 - 62	238 - 240 117 - 120	57 1/2 - 58
277/480 V 60 HERTZ 3 PHASE	E1 TO E2 E1 TO E3 E2 TO E3 E1,E2,E3 TO	480 - 482 276 - 278	61 1/2 - 62	478 - 480 276 - 277	57 1/2 - 58
110/220 V. 50 HERTZ 3 PHASE	E1 TO E2 E1 TO NEUTRAL E2 TO NEUTRAL	225 - 230 112 - 115	51 - 51 1/2	215 - 220 107 - 110	48 1/2 - 49
110/220 V. 50 HERTZ 3 PHASE	E1 TO E2 E1 TO E3 E2 TO E3 E1 OR E3 TO	220 - 224 110 - 112	51 - 51 1/2	219 - 220 108 - 110	48 1/2 - 49
220/380 V. 50 HERTZ 3 PHASE	E1 TO E2 E1 TO E3 E2 TO E3 E1,E2,E3 TO	380 - 383 220 - 223	51 - 51 1/2	378 - 380 219 - 220	48 1/2 - 49
240/416 V. 50 HERTZ 3 PHASE	E1 TO E2 E1 TO E3 E2 TO E3 E1 OR E3 TO NEUTRAL	416 - 420 240 - 243	51 - 51 1/2	414 - 416 238 - 240	48 1/2 - 49

50 hertz windings60 hertz windings

MOUNTING DIMENSIONS FOR STANDBY SETS, 8.0 KW THRU 130.0 KW

CEMENT SLAB WITH
MINIMUM OF 4" THICK,
SUPPLIED BY INSTALLER
SLAB DIMENSIONS SHOULD
BE MINIMUM 4" LARGER
THAN PERIMETER DIMENSIONS
OF GENERATOR



CEMENT SLAB MINIMUM OF 4" THICK
OR USE THE PORTABLE SURFACE MOUNT
PAD AS FURNISHED BY YOUR DISTRIBUTOR

NOTE: RE-INFORCED POLYETHYLENE
PAD, IS FURNISHED WITH ALL DRY
FUEL, RESIDENTIAL STANDBY SETS,
IN SIZES 8 KW THRU 15 KW.
INFORMATION IS GIVEN ON THESE
FIRST TWO SIZES, FOR THOSE THAT
PREFER A CEMENT SLAB

FRAME LG X WI	DESCRIPTION OF STANDBY SET	C-C DIM. IN BASE	
		LENGTH	WIDTH
36" X 31"	7.0 KW THRU 12.5 KW 3600 RPM FOR DRY FUEL ONLY	29-1 1/2"	29 1/8"
48" X 34"	16.0 KW 3600 RPM FOR DRY FUEL ONLY	35-7 1/6"	32-1 1/8"
60" X 36"	15.0 KW THRU 33.0 KW 1800 RPM FOR DIESEL AND DRY FUEL	56"	32"
78" X 42"	42.0 KW THRU 75.0 KW 1800 RPM FOR DIESEL AND DRY FUEL	66"	39"
98" X 48"	85.0 KW THRU 130.0 KW 1800 RPM FOR DIESEL AND DRY FUEL	86"	45"

RADIATOR

ALTERNATOR

ACTUATOR

**JOHN DEER
6068HF
BASE 150**

HI TEMP SWITCH
HI TEMP SENDER

ENGINE TOP VIEW

LOW OIL SWITCH
LOW OIL SENDER

PREHEAT

STARTER
SOLENOID
GROUND

BATTERY

GROUND

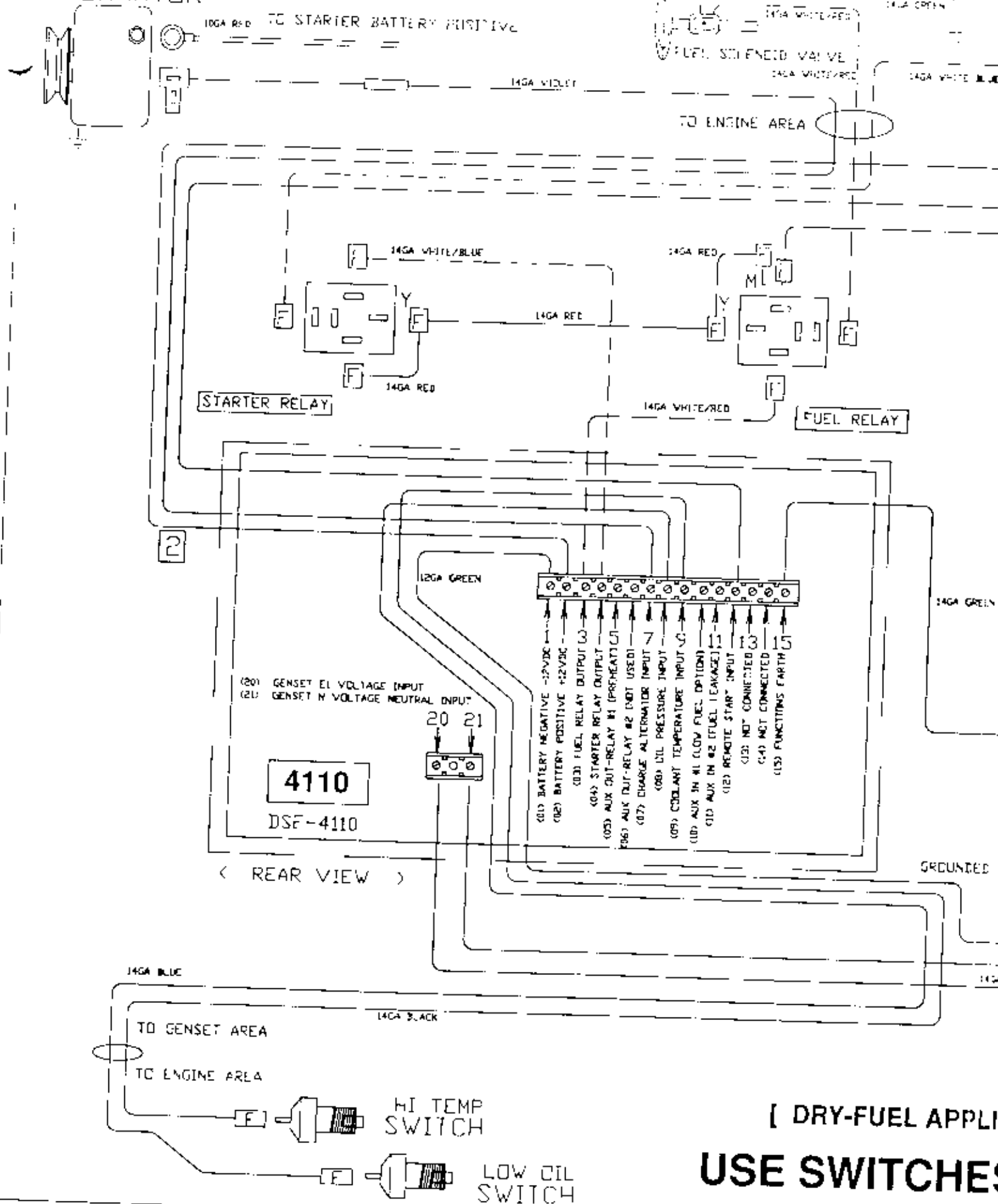
OPTIONAL
EXTENDED USE
OIL FUEL TANK

SPJD-JOHN-DEERE-6

SPJD-6068HF-BASE150-WEG-3PH-277

JD-6068HF-BASE150-SENTINEL-S

2. TERMINAL

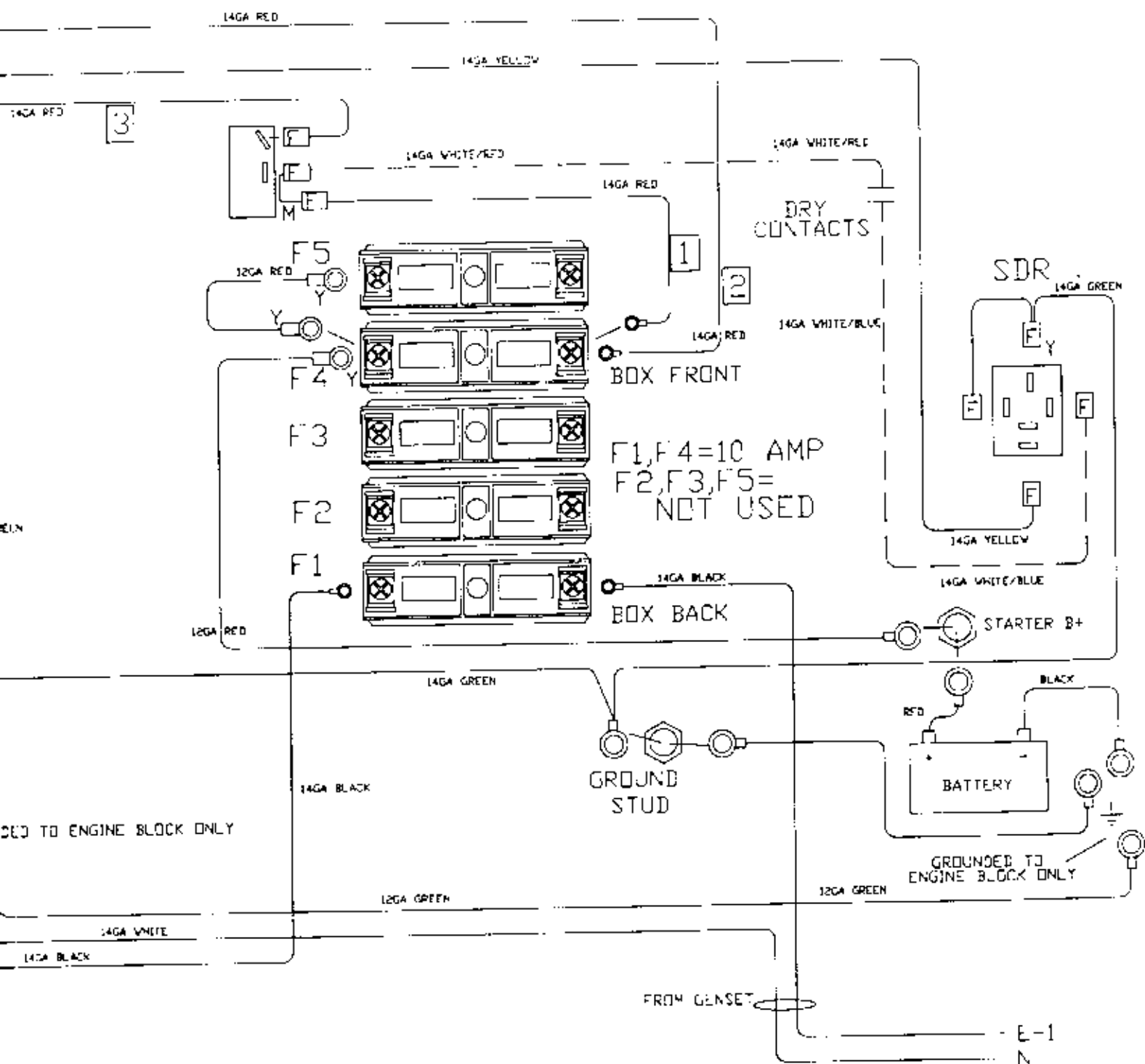


STARTER

SOLENOID

WIRING FOR SENTINEL-SCOUT [DRY-FUEL APPLICATION]

SDR= START-DETECT-RELAY



PLICATION]

HES ONLY!

	GILLETTE GENERATORS, INC. 1340 WADE DR., ELKHART, IN 46514 (574) 264-9639			
	DESCRIPTION: WIRING DETAIL/ DRY FUEL APPLICATION FOR SP SERIES GENSET REV 10 WIRING FOR AUTOMATIC START / STOP FUNCTIONS USING 4110 SCOUT			
DATE: 12-09-05	PT. NO: 1	SCALE: N/A	CAD. NO.: C51209.12:00:00	
DR. BY: TEDD/JON	ENG. RH	PG. NO. 1 OF 1	DRAWING NO.: SP-SENTINEL SCOUT DETAIL	

TO ENGINE

TO ENGINE
CONTROL HARNESS

SYSTEM BATTERY
-12VDC

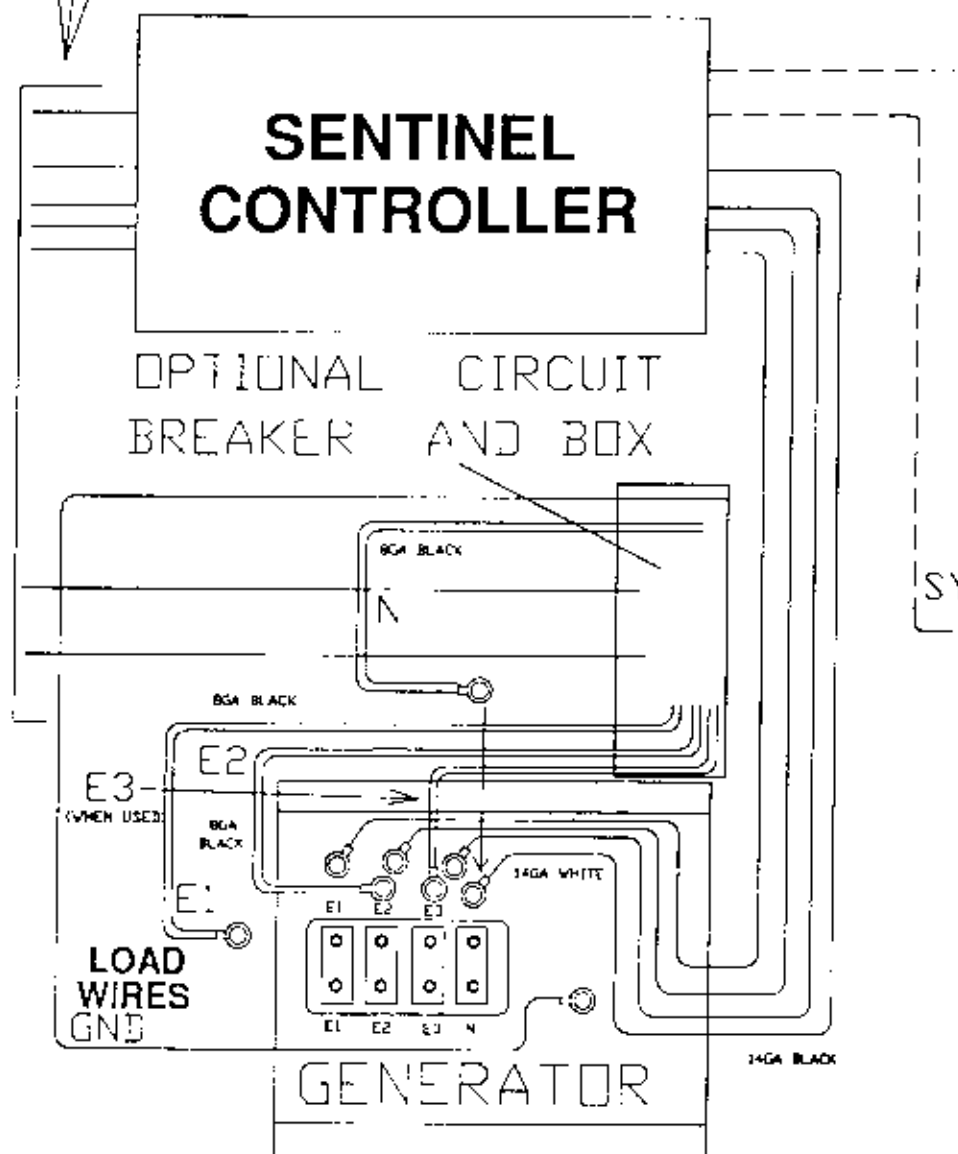
ENGINE MOUNTED CONTROL BOX WIRING DETAIL

★

BA
US
TI
CU
OV
WI
CA

SENTINEL CONTROLLER

OPTIONAL CIRCUIT
BREAKER AND BOX



14GA WHITE/RED
SYSTEM START SOURCE
SYSTEM START SE
14GA WHITE

OPTIONAL BATTERY-CHARGER ON GENERATOR

120VAC

N1

NEUTRAL

BATTERY CHARGER MUST BE USED. IF NOT SELECTED AT TIME OF ORDER THEN CUSTOMER MUST SUPPLY HIS OWN 12VDC BATTERY CHARGER WITH AT LEAST (2) AMP CAPACITY.

ASCO CONTROLLER

J6

16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

BYPASS TRANSFER TIME DELAY
INHIBIT TRANSFER TO EMERG
MAINT-OPEN TO XFER TO EMERG
MOMENTARY TEST SWITCH
OPTIONAL ENGINE EXERCISER

TERMINAL LUGS
LOCATED ON
SWITCH GEAR
MECHANISM

NC C NO
ENGINE
START

TB-14

CUSTOMER CONTACTS

ASCO
WIRING

TB-15

NO-CONNECTION

TB-16

ASCO-300-SERIES-TRANSFER-SWITCH



GILLETTE GENERATORS, INC. 1340 WADE DR., ELKHART, IN 46514 (574) 264-9832

DESCRIPTION: WIRING FOR SP SERIES GENSET W/ SENTINEL CONTROLLER
CONNECTED TO ASCO 300 TRANSFER SWITCH

REV
C

DATE: 06-11-03

PT. NO: N/A

SCALE: N/A

CAD_NO.: 060220.12:00:00

DR. BY: JON

ENG. RF

PG. NO. 1 OF 1

DRAWING NO.: SP-300-300-SENT-LENS