

INTRODUCTION

The GSV300 is an easy to use, multifunction generator monitor that is packed with useful features.

- Large LCD display shows status and user-set parameters
- Works with all types of generators
 - Any voltage from 120-480 VAC
 - Single and Three Phase
 - Works with “Low-RPM” and “Quiet” type generators
- Verifies that the generator automatically performed its periodic self-test (Exercise Failure alarm)
- Serves as an oil change reminder (Oil Change alarm)
- Detects when utility power fails and generator fails to start (Generator No-Start alarm)
- Detects if the generator is on for longer than 50 minutes while utility power is on (Generator Runaway alarm)
- Internal beeper activates when any alarm condition occurs
- Has four relay alarm outputs which can optionally be connected to a remote monitoring system
 - Exercise Failure Alarm
 - Oil Change Reminder Alarm
 - Generator No-Start Alarm
 - Generator Runaway Alarm
- Built in run-time-hour meter
- Built in voltmeter (for both utility and generator power)
- Built in Generator frequency meter
- LCD shows generator history
 - Number of Good Exercise Cycles
 - Number of Bad Exercise Cycles
 - Time and date of Last Good Run
 - Duration of Last Good Run
 - Total Generator Run Time Hours
 - Countdown Timer to Next Exercise Cycle
 - Time and Date of last reset
- 9V Battery Backup lasts 4 days during extended power outages and an accompanying generator failure
- Mounts to a standard ½” knockout
- Includes long 4 foot wires to ease installation

Hazardous voltages exist inside the GSV300 when the 120V or Utility or Generator is on. Always turn off all power to the GSV300 when changing the 9V battery

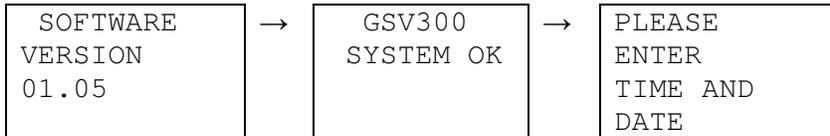
STEP 1 - MOUNT THE GSV300 & CONNECT 120VAC

1. Determine a suitable location for mounting the GSV300. The GSV300 is typically mounted to a generator control panel using a standard ½” knockout. Make sure that you can access the back cover of the GSV300 after it is mounted so that you can have access to the 9V battery compartment.
2. Connect the WHITE wire to NEUTRAL
3. Connect the BLACK wire to (constant on) 120VAC
4. Turn on the 120V power

Note: To comply with UL requirements, the 120V power to the GSV300 must be on a fuse or circuit breaker rated at 25 Amps or less

Note: The GSV300 must be 120VAC regardless of the generator or utility voltage. If the generator outputs 480VAC, the black and white wires must still be connected to 120V.

5. After power is turned on, verify that the GSV300 beeps twice, then shows the software version, then the SYSTEM OK screen.



Don't install the 9V battery yet and don't worry about entering the time and date. These will be done in later steps. For now just verify that the GSV300 powers up and shows the screens described above.

6. When finished turn off the 120VAC power to the GSV300.

Note: The Software Version number may change as updates are made to the GSV300 product line.

STEP 2 - CONNECT UTILITY and GENERATOR POWER

1. Decide what type of generator service you have and connect the Utility Power wires and the Generator Power wires using the table below. Also refer to Figure 1 through Figure 4 located at the end of this manual.

TYPICAL INSTALLATION	NUM HOT INPUTS	WIRES TO CONNECT					
		GENERATOR			UTILITY		
		A	B	C	A	B	C
<ul style="list-style-type: none"> • Single Phase Generators (120 only) 	1	RED	-	-	BLU	-	-
<ul style="list-style-type: none"> • Single Phase 120/240 (see Fig 1) • 3 Phase Delta with one phase connected to Neutral (see Fig 2) • 3 Phase Delta with all 3 phases hot (requires four external transformers Transtar #TS1H727 - see Fig 3) 	2	RED	OR GREEN	-	BLU	VIO	-
<ul style="list-style-type: none"> • 3 Phase Wye generators with center tap NEUTRAL (see Fig 4) 	3	RED	OR GREEN	YELLOW	BLU	VIO	GRAY

If some wires are not used then they must be capped-off. For example, if the generator service has two hot inputs (such as 120/240 service) then cap off the YELLOW and GRAY wires.

The Generator and Utility power MUST be connected at the source side of the transfer switch. Do not connect either to the “Load” or “Common” side of the transfer switch.

The NUM HOT INPUTS is a parameter that needs to get entered into the GSV300. Remember this value so it can be entered later in Step 4.4.

Note: To comply with UL requirements, the Generator Power and Utility Power to the GSV300 must be on a fuse or circuit breaker rated at 25 Amps or less

Note: For safety considerations, make sure the Generator and Utility power is off while making the connections.

STEP 3 - CONNECT OPTIONAL ALARM OUTPUTS

The GSV300 has four relay outputs which may optionally be connected to a Transtar or other monitoring system. The relay outputs can be programmed to be normally-open or normally-closed as described in Step 4.7.

1. If desired, connect the relay alarm outputs to a remote monitoring system or other system as shown in Figure 5 or Figure 6. Note that the two wires in each twisted pair are interchangeable. Example: The BLU and BLU-WHT wires can be reversed without causing any problem.

LOW VOLTAGE RELAY OUTPUTS		
WIRE COLOR	DESCRIPTION	FUNCTION
BLU / BLU-WHT	Selftest Failure Alarm	The generator failed to perform its routine periodic auto-start.
GRN / GRN-WHT	Generator No Start Alarm	The generator failed to start within 1 minute after the utility power failed. Essentially, the generator failed to turn on.
ORG / ORG-WHT	Oil Change Reminder Alarm	Time for an oil change. The installer can set an oil change interval (E.g. change oil every 12 months) or an oil change number of run hours (E.g. change oil every 100 generator run-hours)
BRN / BRN-WHT	Generator Runaway Alarm	The generator kept running 50 minutes after utility power came on. Essentially the generator failed to shut off.

Note: The relay outputs are rated for a maximum of 28V and 100mA. If a higher voltage or current is required for your application, use an external relay as shown in Figure 6.

STEP 4 - ENTER GSV300 PARAMETERS

1. **Install the 9V battery.** Remove the four screws from the back cover and install the battery. When finished reinstall the back cover. The back cover has foam on one side to keep the battery from rattling. Make sure the foam is on the battery side. When the battery is installed the GSV300 will power-up

Note: When the battery is initially installed the GSV300 will power up and prompt you to enter the time and date. This is normal operation. Time and date are entered later in Step 4.2.

Turn on 120V POWER to the GSV300

Turn on UTILITY POWER to the GSV300. Do not start the generator yet.

Note: If the Utility Power is NOT on then the GSV300 will go into the "Generator No Start" alarm condition after 1 minute. This is because the Utility Power is off and the Generator is not on. If this occurs recheck the Utility wiring to the GSV300.

Hazardous voltages exist in the GSV300 when the 120V or Utility or Generator is on. Always turn off all power to the GSV300 when changing the 9V battery

2. **Enter the Time and Date.** Note that you must enter time and date prior to entering any other parameters. The GSV300 will continuously prompt you to enter Time and Date until both values have been completely entered.

CURRENT TIME
09:42 (24 HR)

USER ENTRY. Allows user to enter time. Note that time must be entered in **24-Hour mode**. E.g. 3:25 PM is entered as 15:25.

CURRENT DATE
11/12/05

USER ENTRY. Allows user to enter current date in MM/DD/YY format. After entering the time and date, press the RESET button.

3. Enter the Voltage Limits

SETTING THE LIMITS INCORRECTLY IS THE MOST COMMON CAUSE OF INCORRECT OPERATION. FOLLOW THESE INSTRUCTIONS CAREFULLY, ESPECIALLY WHEN USING A QUIET or LOW-RPM TYPE GENERATOR

VOLTAGE LIMITS
LO: **095**V HI: **145**V

USER ENTRY. Allows user to enter the High and Low voltages as measured between each Hot input and Neutral. Valid values are 000V to 599V. This sets the expected voltages for BOTH the generator and the utility power. Set the LO and HI limits to be about 20% above and below the nominal voltages. E.g. for a 120V system set the low limit to be $120V * 0.8 = 95V$ and the high limit to be $120 * 1.2 = 145V$. For “Quiet” or “Low RPM” type generators, consult the generator manual as to the voltage output during the Quiet or Low RPM exercise. When in doubt it is OK to set the limits to be very wide. For example, if a Low RPM generator outputs 50V during an exercise and 120V during normal operation, it is OK to set the LO limit to be 40V and the high limit to be 145V.

4. **Enter the Number of Hot Inputs.** This value depends on what type of generator is installed. REFER BACK TO STEP 2.1 FOR MORE INFORMATION

NUM HOT INPUTS
2

USER ENTRY. Number of active inputs when generator and utility power is on. Valid values are 1, 2, 3.

5. **Enter the Number of Days between exercise cycles.** This value depends on how the generator controller is programmed

EXERCISE CYCLE
NUM DAYS: **08**

USER ENTRY. Number of days between exercise cycles. Example: If the generator is set to exercise every 14 days then this value should be set to 15. Valid values are 01 to 31 days.

6. Decide whether you want the GSV300 to check for “Generator Runaway” condition and enter Y or N

CHECK FOR GEN
RUNAWAY? **Y**

USER ENTRY. Specifies whether the GSV300 should check for the Generator Runaway condition. A “Generator Runaway” means that the generator ran for more than 50 minutes while utility power is on. Essentially, it determines if the generator fails to stop when utility power is present. Valid entries are Y or N.

7. **Set the status of the four alarm outputs** according to your application. If the four alarms are to be connected to a standard Transtar monitoring system, set the four alarm outputs to Normally Open.

The terms Normally-Open and Normally-Closed can be confusing at first. The important thing is that when the GSV300 is set correctly there is no alarm registered by the monitoring system. If you are unsure how to set the four alarm status settings, just use the default settings and the correct polarity will be determined later in Step 5.9 when the GSV300 is tested.

SELFTTEST ALM RLY
NORMALLY OPEN

USER ENTRY. Allows user to specify Normally Open vs. Normally Closed relay for the Selftest Alarm. The relay will activate if the generator exercise fails

GEN FAIL ALM RLY
NORMALLY OPEN

USER ENTRY. Allows user to specify Normally Open vs. Normally Closed relay for the Generator Failure Alarm. This relay will activate if the utility power fails and the generator does not come on within 1 minute

OIL CHG ALM RLY

NORMALLY OPEN

USER ENTRY. Allows user to specify Normally Open vs. Normally Closed relay for the Oil Change Alarm. This relay will activate if the number of generator run hours exceeds the value entered in the “CHANGE OIL EVERY xx RUN HOURS” screen, or, exceeds the number of months since the last oil change as entered in the “CHANGE OIL EVERY xx MONTHS” screen.

**GEN RUNAWAY RLY
NORMALLY OPEN**

USER ENTRY. Allows user to specify Normally Open vs. Normally Closed relay for the Generator Runaway Alarm. A “Generator Runaway” means that the generator ran for more than 50 minutes while utility power was on. Essentially, it determines if the generator fails to stop when utility power is present.

8. **Set the interval between oil changes.** The GSV300 will assert the “Oil Change” reminder alarm whenever the number of run hours or the number of calendar months expires, whichever occurs first

**CHANGE OIL EVERY
100 RUN HOURS**

USER ENTRY. Allows the user to enter the number of run hours between oil changes. Valid values are 001-199 hrs.

**CHANGE OIL EVERY
12 MONTHS**

USER ENTRY. Allows the user to enter the number of months between oil changes. Valid values are 1-23 months

NOTE: During installation it is common to have a GENERATOR START FAIL alarm. This usually occurs because the utility power is either off or not connected. If the utility power IS connected and you still get this faulty alarm condition then double check the NUM HOT INPUTS and VOLTAGE LIMITS screens, and double check the Utility wiring. Press the RESET button to remove the alarm condition.

STEP 5 - TEST THE GSV300

1. **TEST THE UTILITY POWER CONNECTIONS.** Scroll to the UTILITY VOLTMETER screen. Turn OFF the Utility Power to the GSV300 and verify that the three voltages read zero. Example: A000 B000 C000.
2. Turn off 120V power to the GSV300. Disconnect the black wire if necessary. Verify that the 9V battery continues to power the GSV300 while the 120V Power is off.

If the GSV300 LCD display goes blank when the 120V Power is turned off then that means that the 9V battery is either dead or not installed correctly. Repeat Step 4.1.

3. Turn on the Utility Power to the GSV300. Verify that the UTILITY VOLTMETER screen shows the correct voltages.
4. Make sure that the voltmeter readings are well within the limits entered in Step 4.3.

UTILITY VOLTMETER A120 B120 C000
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- If NUM HOT INPUTS is set to 1 then phase A must be valid and phase B and C must show 000
 - If NUM HOT INPUTS is set to 2 then phase A and B must be valid and phase C must show 000
 - If NUM HOT INPUTS is set to 3 then phases A,B,C must be valid
5. **TEST THE GENERATOR POWER CONNECTIONS.** Scroll to the GEN VOLTMETER screen. Make sure the generator is off and that the three voltages read zero. Example: A000 B000 C000.
 6. Turn on the Generator Power to the GSV300. Verify that the GEN VOLTMETER screen shows the correct voltages.
 7. Make sure that the voltmeter readings are well within the limits entered set in Step 4.3.

GEN VOLTMETER A120 B120 C000

- If NUM HOT INPUTS is set to 1 then phase A must be valid and phase B and C must show 000
- If NUM HOT INPUTS is set to 2 then phase A and B must be valid and phase C must show 000
- If NUM HOT INPUTS is set to 3 then phases A,B,C must be valid

- 8. Verify that the LCD screen flashes GEN IS ON every 5 seconds while the generator is running.

IF THE LCD DOES NOT FLASH “GEN IS ON” EVERY 5 SECONDS WHILE THE GENERATOR IS RUNNING THEN EITHER THE VOLTAGE-LIMITS FROM STEP 4.2 OR THE NUM-HOT-INPUTS FROM STEP 4.3 IS ENTERED INCORRECTLY.

*IF YOU ARE USING A “QUIET” OR “LOW-RPM” TYPE GENERATOR THEN THE VOLTAGE WILL BE DIFFERENT DEPENDING ON WHETHER THE GENERATOR IS PERFORMING A “QUIET” EXERCISE VERSUS NORMAL RUNNING WHERE THE GENERATOR IS DELIVERING FULL POWER TO THE LOAD. RUN THE GENERATOR IN “QUIET” MODE AND RECORD THE VOLTAGE. THEN RUN IT IN NORMAL MODE AND RECORD THE VOLTAGE. RE-ENTER THE VOLTAGE LIMITS FROM STEP 4.3. SET THE LO LIMIT TO THE EXERCISE VOLTAGE * 0.8 AND THE HI LIMIT TO THE NORMAL VOLTAGE * 1.2*

- 9. **TEST RELAY OUTPUTS INDIVIDUALLY.** If you have installed one or more of the alarm relay outputs to a monitoring system, each output can be tested individually. If you have installed all four outputs then perform steps 10-13 below. If you have installed fewer than all four, just perform the step which applies. If no outputs are wired to a monitoring system then proceed to Step 14.
- 10. Scroll to the SELFTEST ALM RLY screen and toggle between the default (normally open or normally closed) setting that you entered in Step 4.7. If the alarm is connected to a monitoring system, verify that the monitoring company “sees” the alarm when the relay is set to the non-default (alarm) state. When finished set the SELFTEST ALM RLY back to the default (no alarm) state.
- 11. Scroll to the GEN FAIL ALM RLY screen and toggle between the default (normally open or normally closed) setting that you entered in Step 4.7. If the alarm is connected to a monitoring system, verify that the monitoring company “sees” the alarm when the relay is set to the non-default (alarm) state. When finished set the GEN FAIL ALM RLY back to the default (no alarm) state.
- 12. Scroll to the OIL CHG ALM RLY screen and toggle between the default (normally open or normally closed) setting that you entered in Step 4.7. If the alarm is connected to a monitoring system, verify that the monitoring company “sees” the alarm when the relay is set to the non-default (alarm) state. When finished set the OIL CHG ALM RLY back to the default (no alarm) state.
- 13. Scroll to the GEN RUNAWAY RLY screen and toggle between the default (normally open or normally closed) setting that you entered in Step 4.7. If the alarm is connected to a monitoring system, verify that the monitoring company “sees” the alarm when the relay is set to the non-default (alarm) state. When finished set the GEN RUNAWAY RLY back to the default (no alarm) state.
- 14. **CLEAR OUT GENERATOR HISTORY.** During this installation procedure the GSV300 has been exercised and thus has some history that should be cleared out before the installation is complete.
- 15. Scroll to the CLR GEN INFO screen and then press-and-hold the CHANGE button for 2 seconds. This resets the NUM GOOD RUNS and NUM BAD RUNS back to zero.
- 16. Scroll to the RST OIL CHANGE screen and then press-and-hold the CHANGE button for 2 seconds. This schedules an oil change reminder alarm in the future.

TUTORIAL FOR ENTERING DATA

There are 26 screens which are shown on the LCD display. Most of the screens are information-only but you must enter data into 12 of the screens. These are known as **USER ENTRY** screens and the values are entered in Step 4.1 through 4.8 of this procedure

To navigate between screens press the **PREV** or **NEXT** button. If you are on a **USER ENTRY** screen a blinking underline cursor will appear below the number to be changed. If you press the **CHANGE** button the number will cycle between the valid values. If there are multiple values to enter you move to the next number by pressing the **NEXT/PREV** button. Press **NEXT** to move the cursor forward, press **PREV** to move the cursor backwards.

Example of setting the **VOLTAGE LIMITS** screen

LO:170 HI:260

VOLTAGE LIMITS LO: <u>0</u> 95V HI: 135V	Press CHANGE to start changing the values
VOLTAGE LIMITS LO: 1 <u>9</u> 5V HI: 135V	Press NEXT to scroll to the next number
VOLTAGE LIMITS LO: 1 <u>7</u> 5V HI: 135V	Press CHANGE until 7 appears
VOLTAGE LIMITS LO: 1 <u>7</u> 5V HI: 135V	Press NEXT to scroll to the next number
VOLTAGE LIMITS LO: 1 <u>7</u> 0V HI: 135V	Press CHANGE until 0 appears
VOLTAGE LIMITS LO: 170V HI: <u>1</u> 35V	Press NEXT to scroll to the next number
VOLTAGE LIMITS LO: 170V HI: <u>2</u> 35V	Press CHANGE until 2 appears
VOLTAGE LIMITS LO: 170V HI: <u>2</u> 35V	Press NEXT to scroll to the next number...
	Continue as previous until all numbers have been entered

The key thing to remember is that once you press the **CHANGE** button, the **PREV** and **NEXT** buttons now move between the various numbers that you can enter. If you are on the very leftmost number and you press **PREV**, it scrolls to the previous screen. If you are on the very rightmost number and you press **NEXT**, it scrolls to the next screen.

SUMMARY OF SCREENS

Below is a list of all of the screens, in the order in which they appear.

GSV300
SYSTEM OK

This screen is shown after the power is applied or the RESET button is pressed and everything is OK

CURRENT DATE
11/12/05

USER ENTRY Allows user to enter current date. Note: Immediately after updating the date and time, the GSV300 may have a “false alarm”. This is because the GSV300 relies on the clock to schedule events like oil change, exercise cycle, etc. After updating the date and time always press the RESET button.

CURRENT TIME
09:42 (24 HR)

USER ENTRY Allows user to enter current time. Note that time must be entered in **24-Hour mode**. E.g. 3:25 PM is entered as 15:25.

VOLTAGE LIMITS
LO: 095V
HI: 145V

USER ENTRY High and Low voltages as measured between each Hot input and Neutral. Valid values are 000V to 599V. This sets the expected voltages for BOTH the generator and the utility power. Set the LO and HI limits to be about 20% above and below the nominal voltages. E.g. for a 120V system set the low limit to be $120V * 0.8 = 95V$ and the high limit to be $120 * 1.2 = 145V$. For “Quiet” or “Low RPM” type generators, consult the generator manual as to the voltage output during the Quiet or Low RPM exercise. When in doubt it is OK to set the limits to be very wide. For example, if a Low RPM generator outputs 50V during an exercise and 120V during normal operation, it is OK to set the LO limit to be 40V and the high limit to be 145V.

NUM HOT INPUTS
2

USER ENTRY Number of active inputs when generator and utility power is on. Valid values are 1, 2, 3. See Step 2 for more information.

EXERCISE CYCLE
NUM DAYS: 08

USER ENTRY Number of days between exercise cycles. Example: If the generator is set to exercise every 14 days then this value should be set to 14 or 15. Valid values are 01 to 31 days.

CHECK FOR GEN
RUNAWAY? Y

USER ENTRY Specifies whether the GSV300 should check for the Generator Runaway condition. A “Generator Runaway” means that the generator ran for more than 50 minutes while utility power is on. Essentially, it determines if the generator fails to stop when utility power is present. Valid entries are Y or N. Checking for runaway usually requires that Generator Runaway alarm wires be connected to a monitoring system.

SELFTTEST ALM
RLY
NORMALLY
CLOSED

Failure Alarm. This generator does not come

USER ENTRY Allows user to specify Normally Open vs. Normally Closed relay for the Selftest Alarm. The relay will activate if the generator exercise fails

GEN FAIL ALM
RLY
NORMALLY
CLOSED

USER ENTRY Allows user to specify Normally Open vs. Normally Closed relay for the Generator relay will activate if the utility power fails and the on within 3 minutes

OIL CHG ALM
RLY
NORMALLY

CLOSED

USER ENTRY Allows user to specify Normally Open vs. Normally Closed relay for the Oil Change Reminder Alarm. This relay will activate if the number of generator run hours exceed the value entered in the “CHANGE OIL EVERY xx RUN HOURS” screen, or, the number of months since the last oil change exceeded the value entered in the “CHANGE OIL EVERY xx MONTHS” screen.

GEN RUNAWAY
RLY

**NORMALLY
CLOSED**

USER ENTRY Allows user to specify Normally Open vs. Normally Closed relay for the Generator Runaway Alarm. A “Generator Runaway” means that the generator ran for more than 50 minutes while utility power is on. Essentially, it determines if the generator fails to stop when utility power is present.

CHANGE OIL
EVERY
100 RUN HOURS

of months between oil

USER ENTRY Allows the user to enter the number of run hours between oil changes. Valid values are 001-199 run hours

CHANGE OIL
EVERY
12 MONTHS

USER ENTRY Allows the user to enter the number changes. Valid values are 1-23 months

SIMULATE
ALARM?
(HOLD CHANGE)

Hold the CHANGE button for 2 seconds and the system will go into the alarm state. The four alarm relays will be activated. This is useful to test all four alarm relays simultaneously during installation.

CLEAR GEN
INFO?
(HOLD CHANGE)

Hold the CHANGE button for 2 seconds and it clears the NUM GOOD RUNS and NUM BAD RUNS counters

GSV300 that the oil has
or each time the oil is
schedules an oil change

number of months as specified on the “CHANGE OIL EVERY XX MONTHS” screen. Additionally it reads the TOTAL RUN TIME and adds the number of run hours as specified on the “CHANGE OIL EVERY XXX RUN HOURS” screen. This effectively schedules an oil change reminder in the future.

RST OIL
CHANGE?
(HOLD CHANGE)

Hold the CHANGE button for 2 seconds to tell the been changed. **You must do this upon initial setup changed.** When this screen is used the GSV300 by reading the current time and date and adding the

UTILITY
VOLTMETER
A120 B120 C122

agree exactly with an external voltmeter.

Voltage of A/B/C leads. These will normally show the utility voltage and show all 0’s during a utility power failure. Note that if there is only one hot input then only the A reading will be valid and the B and C readings will show as B000 and C000. The accuracy of this voltmeter is about 5% and it is normal if it does not

GEN VOLTMETER
A120 B120 C122

C readings will show as B000 and C000. The accuracy of this voltmeter is about 5% and it is normal if it does not agree exactly with an external voltmeter.

Voltage of A/B/C leads. These will normally show all 0’s when the generator is off and will show the generator voltage when the generator is running. Note that if there is only one hot input then only the A reading will be valid and the B and

GEN FREQUENCY
60 HZ

Frequency of generator Input A lead. The frequency will show “-- HZ” when the generator is off

NUM GOOD RUNS
0002

Number of good exercise cycles, plus the number of times the generator has turned on. This counter can be reset to zero using the “CLEAR GEN INFO” screen.

NUM BAD RUNS
0003

Number of bad exercise cycles plus the number of “start failures”. This value will increment each time the generator fails to exercise or each time the utility power fails and the generator does not come on. This counter can be reset to zero using the “CLEAR GEN INFO” screen.

LAST GOOD RUN
11/22/05
05:43PM

Date and time of last exercise cycle, or, date and time the last time the generator turned on. The time is shown as 24 hour mode. E.g. 5:15 PM is shown as 17:15.

last time the generator

LAST RUN
DURATON
000 HR 00 MIN

Duration of last good exercise cycle, or, duration the turned on.

TOTAL RUN TIME
00000 HR 00
MIN

Total number of run-time-hours. **The run time hour meter can be reset to 0 by holding the CHANGE button for 8 seconds** while on this screen. This is useful if you want to move the GSV300 to a different generator.

NEXT RUN
BEFORE
07 DAYS 23 HRS

Countdown until next exercise cycle. The GSV300 will alarm and declare an exercise failure if the generator does not come on before the countdown expires.

pressed. The time is
17:15

LAST RESET
11/18/05 03:42

Date and time of the last time the RESET button was shown as 24 hour mode. E.g. 5:15 PM is shown as

OTHER SCREENS

The following screens are shown whenever an alarm or other system event occurs. That is, if you are on any screen and the event happens then these screens are shown automatically.

GENERATOR
IS RUNNING

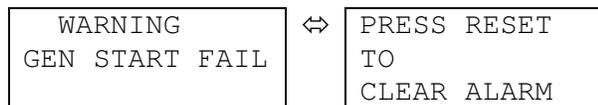
This screen will flash every 5 seconds when the generator is running provided that the generator is outputting voltage which lies within the values entered on the VOLTAGE LIMITS screen. Note that the NUM HOT PHASES screen must also be set appropriately for the GSV300 to determine that the generator is on. Refer to Steps 4.3 and 4.4.

WARNING
EXERCISE
FAILURE

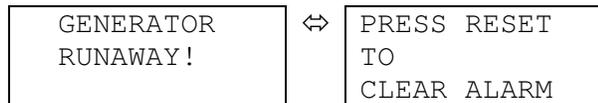


PRESS RESET
TO
CLEAR ALARM

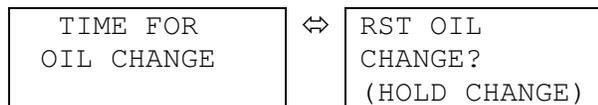
This screen is shown every 10 seconds if an exercise cycle fails. That is, if the generator failed to start after the time specified on the EXERCISE CYCLE NUM DAYS screen. The display will cycle between the two screens and the beeper will sound an alarm tone every 10 seconds until the RESET button is pressed. To prevent this alarm in the future manually verify that the generator will automatically start during it’s self-test interval. If it doesn’t then it is not the fault of the GSV300 and the basic problem needs to be resolved.



This is the Generator No-Start alarm. This screen is shown if the utility power fails and the generator does not start within 3 minutes. The display will cycle between these two screens and the beeper will sound an alarm tone every 10 seconds until the RESET button is pressed. To prevent this alarm in the future manually verify that the generator will start when the utility power fails. If it doesn't then it is not the fault of the GSV300 and the basic problem needs to be resolved.



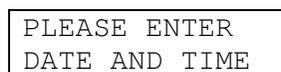
This screen appears should the generator run for more than 50 minutes while prime power is present, that is, the generator is on and didn't automatically shut off when utility power came back on. The display will cycle between the two screens and the beeper will sound an alarm tone every 10 seconds until the RESET button is pressed. This screen will only appear if "Y" is selected on the CHECK FOR GEN RUNAWAY screen. To prevent this alarm in the future fix the problem which causes the generator to continue to run when utility power is on or is restored after a power failure.



This screen appears after the "CHANGE OIL EVERY xx RUN HOURS" or after the "CHANGE OIL EVERY xx MONTHS" values, whichever occurs first. The user MUST change the oil and press-and-hold the CHANGE button on the "RST OIL CHANGE?" screen to get rid of this message. The beeper will "chirp" if an oil change is needed.



This screen is shown when the internal battery gets low. Beeper will "chirp" every 5 seconds during the low battery condition. The system checks for the low battery condition every 10 minutes. After you replace the battery press the RESET button to tell the GSV300 that the battery has been changed. If you forget to press RESET, the GSV300 may continue to chirp and display the low battery warning for up to 10 minutes, but will go back to normal after 10 minutes. The GSV300 may prompt you to re-enter the time and date after a dead battery is replaced. A new alkaline 9V battery should last several years during normal operation and should last 4 days when the 120V input power is not present



This screen is shown when the date is invalid (when the year or month or day field is 00). This screen will flash every 10 seconds until a valid date is entered. The usual cause for this screen is that the utility power went off when the battery was also dead, thus the GSV300 had no power (not even battery backup power). Make sure you re-enter the correct time and date after you replace the 9V backup battery.

REPLACING THE 9V BACKUP BATTERY

1. **Turn off all power** to the GSV300 including the Utility Power, the Generator Power, and the 120V to the GSV300.
2. **Replace 9V battery.** Remove the four screws from the back cover and remove the old battery and replace it with a new 9V Alkaline battery. The back cover has foam on one side to keep the battery from rattling. Make sure the foam is on the battery side. When finished reinstall the back cover. When the battery is installed the GSV300 will power-up
3. **Re-enter Time and Date** as described in Step 4.2.
4. **Re-test the GSV300** as described in Step 5

Note: When the battery is initially installed the GSV300 will power up and prompt you to enter the time and date. This is normal operation.

LIMITED WARRANTY

Transtar Products will repair the unit with new or rebuilt parts, free of charge, for a period of 1 year from the date of original purchase in the event of a defect in materials or workmanship.

Warranty service can be obtained by sending the product to:

Transtar Products, Inc.
767 Warehouse Road
Toledo, OH 43615 USA
Toll Free: 1-866-660-3900
Tel: 419-385-7573
Fax: 419-385-0747

www.GeneratorVerifier.com

Include your name, address, telephone number and a copy of the receipt or Packing List. Also include information about the problem.

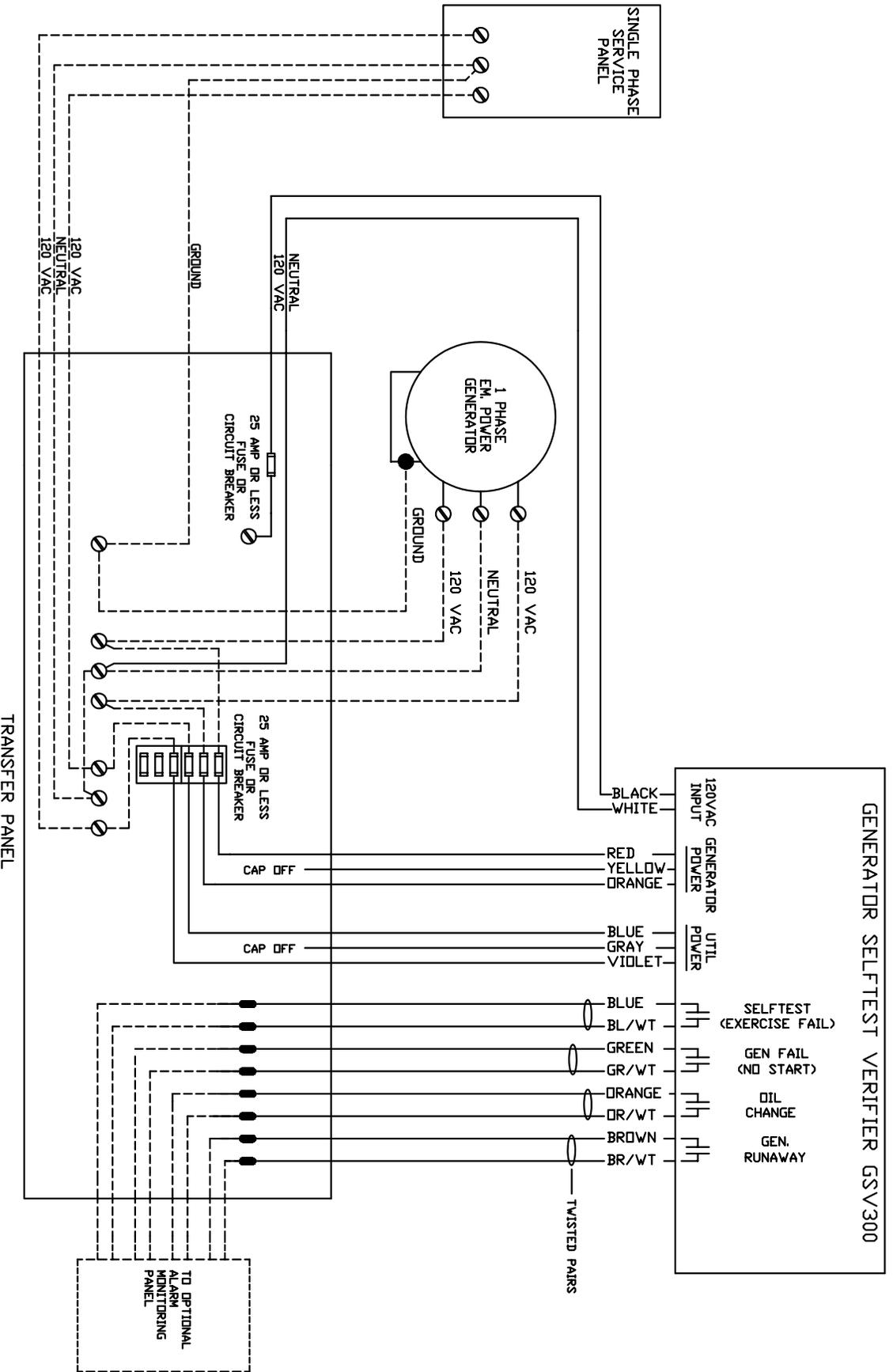
Limits and Exclusions

There are no express warranties except as listed above.

TRANSTAR SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD.

If a problem with this product develops after the warranty period, you may contact our service department via the address listed above for a cost estimate on repairs to the unit.

FIGURE 1
 SINGLE PHASE WIRING DIAGRAM
 240 VOLTS (LINE TO LINE)
 120 VOLTS (LINE TO NEUTRAL)

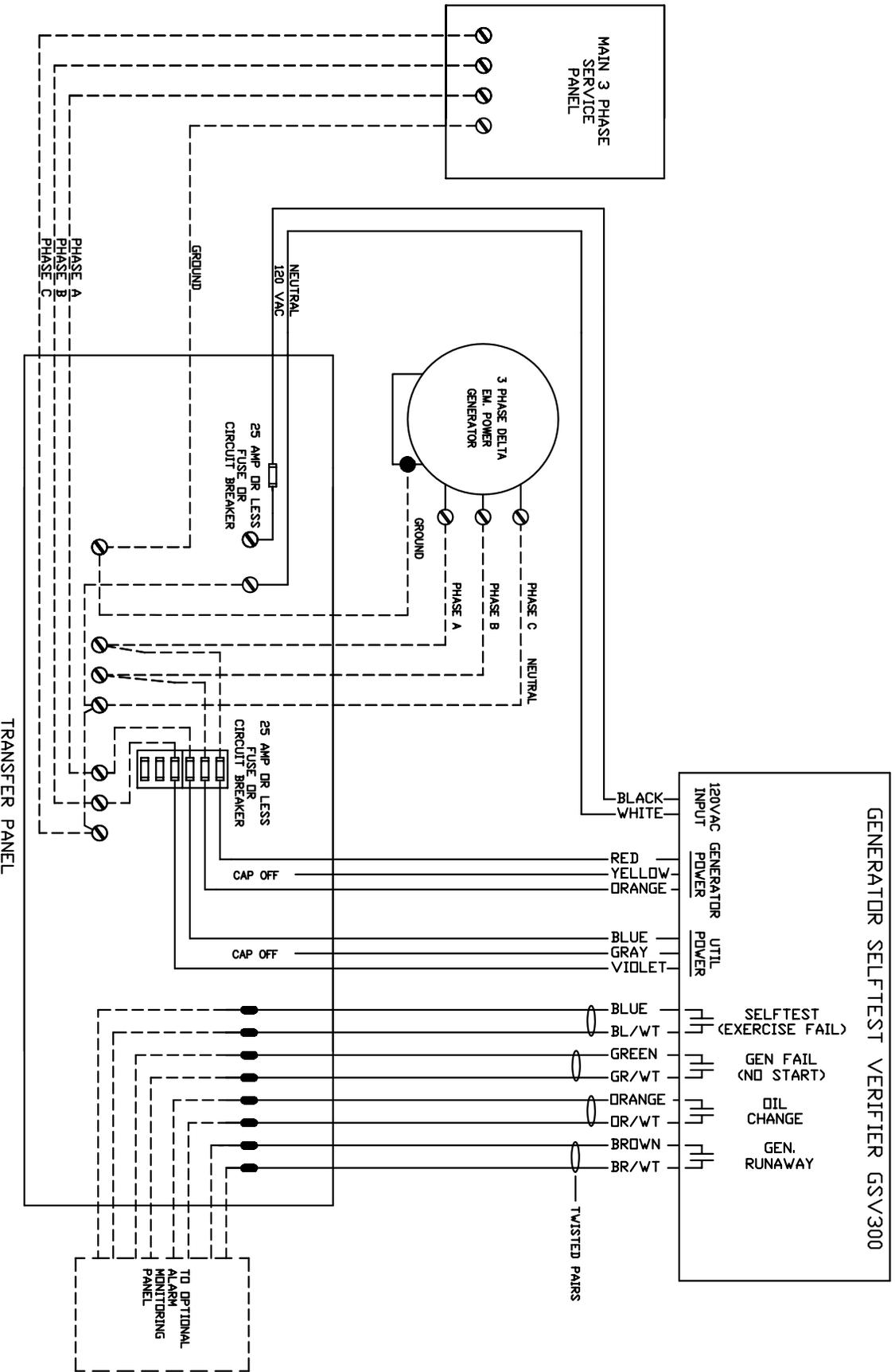


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3	.	.	7	.	.
4	.	.	8	.	.

DR. D.L.B.	DATE 10/07/06
APP. D.L.B.	REvised 04/30/07

Generator Selftest Verifier GSV300	
By TRANSTAR PRODUCTS	
JOB NO.	EE-GSV300
FIGURE	1 OF 6

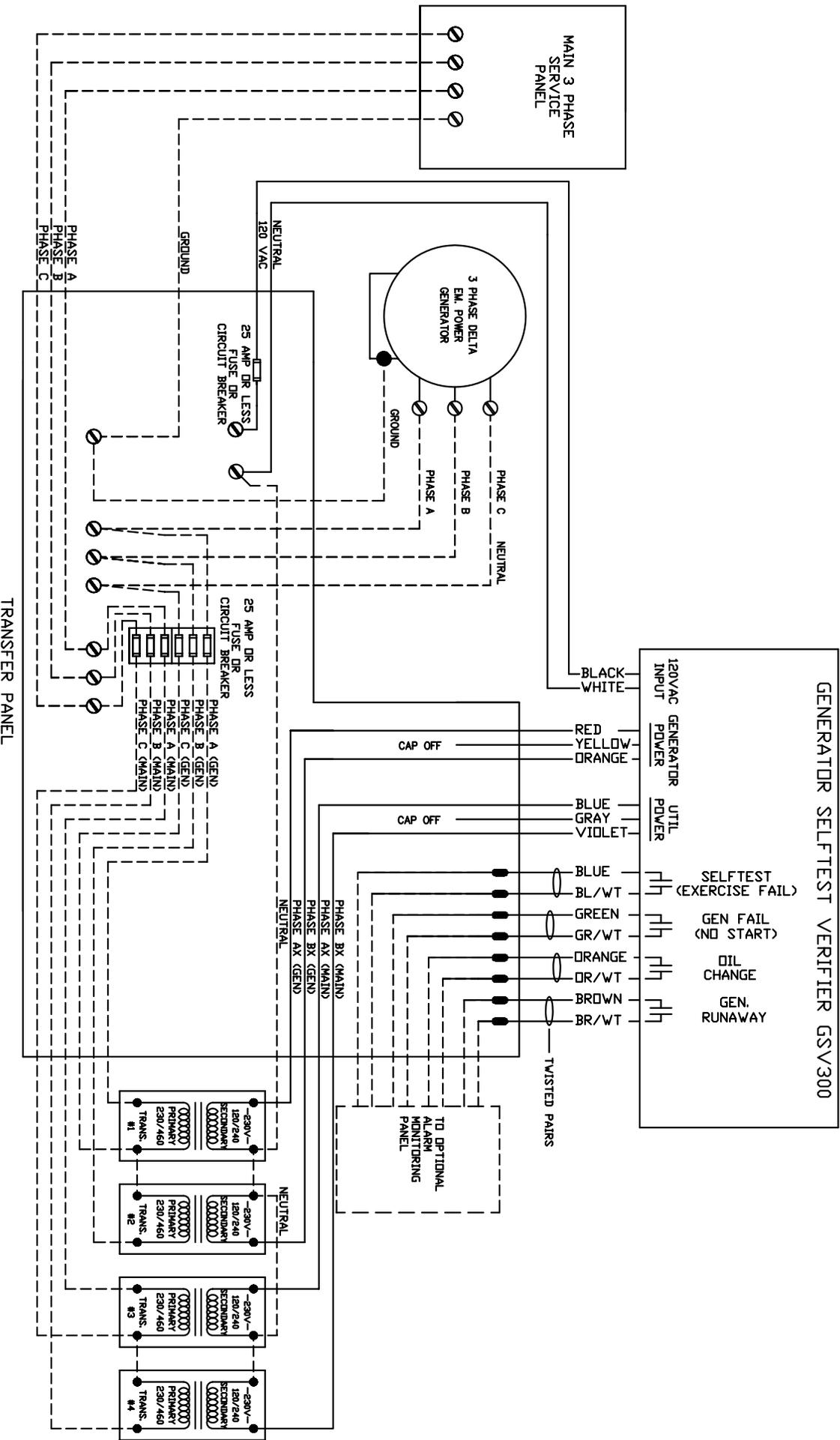
FIGURE 2
 THREE PHASE DELTA WIRING DIAGRAM (PHASE C CONNECTED TO NEUTRAL)
 220/230/240/440/460/480 VOLTS (PHASE TO PHASE)



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Generator Selftest Verifier GSV300		DR. D.L.B.	DATE 10/07/06
BY TRANSTAR PRODUCTS		APP. D.L.B.	REvised 04/30/07
JOB NO.	EE-GSV300	FIGURE	2
		OF	6

FIGURE 3
THREE PHASE DELTA WIRING DIAGRAM (PHASE TO PHASE)
220/230/240/440/460/480 VOLTS (PHASE TO PHASE)



- NOTES:**
- 1) ALARM CIRCUIT MAY BE MODIFIED AS LONG AS CURRENT DOES NOT EXCEED 1AMP. (1 tenth amp)
 - 2) REVERSE INDIVIDUAL TRANSFORMER SECONDARY LEADS UNTIL NOTE #2 VOLTAGES ARE OBTAINED
 - 3) TRANSFORMER PRIMARY VOLTAGE CONNECTION MUST BE THE SAME AS MAIN AND GENERATOR OUTPUT VOLTAGE
 - 4) EACH INDIVIDUAL TRANSFORMER MUST BE 10VA OR MORE
 - 5) FOUR TRANSFORMERS REQUIRED. TRANSSTAR #TSH/27
 - 6) SET 'NUM HOT INPUTS' TO 2 ON GSV300

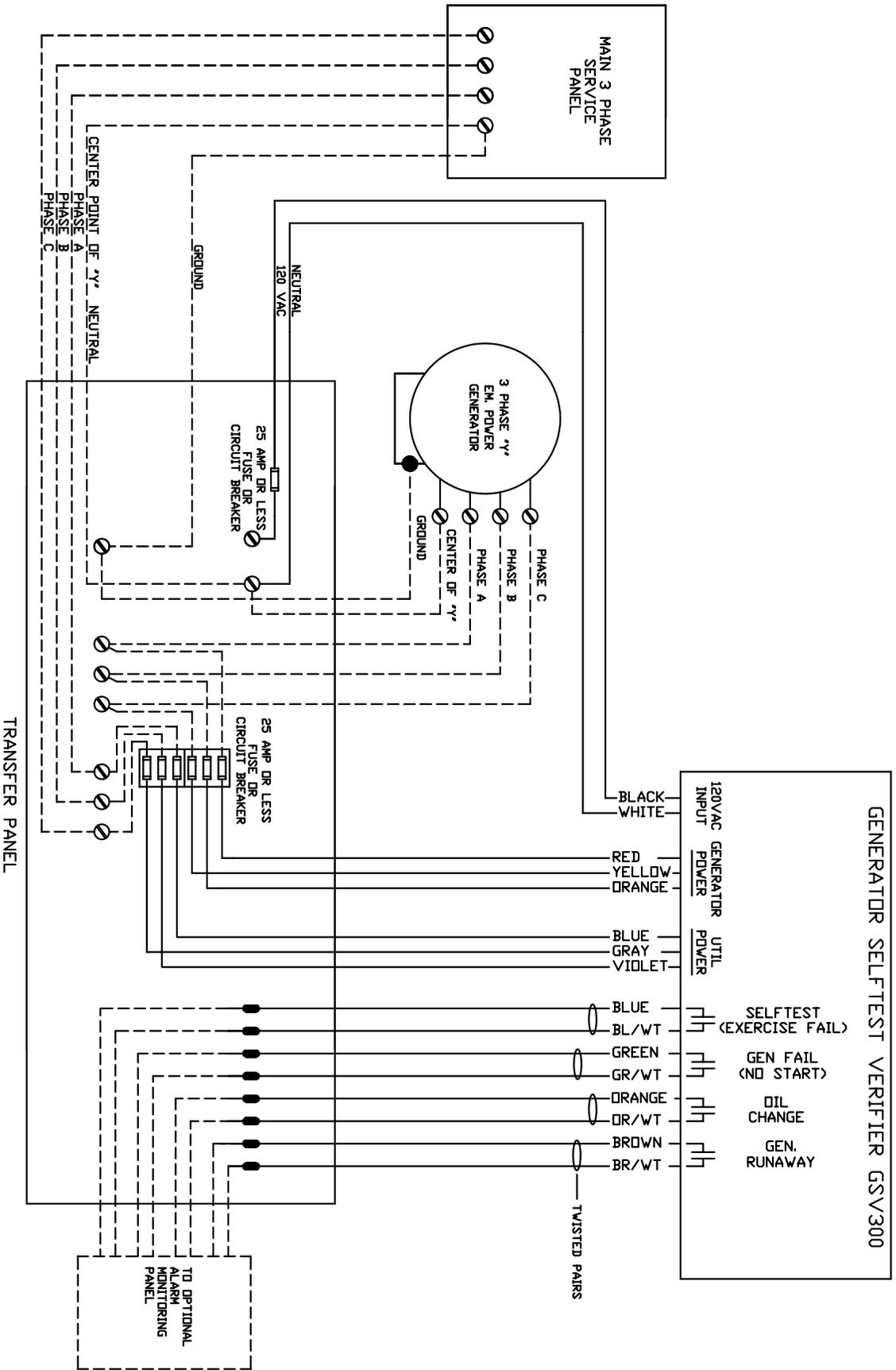
REV.	BY	DATE	REV.	BY	DATE
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2
3
4

DR. D.L.B.	DATE 10/07/06
APR. D.L.B.	REvised 04/30/07

Generator Selftest Verifier GSV300
BY TRANSSTAR PRODUCTS

JOB NO.	FIGURE
EE-GSV300	3
	OF
	6

FIGURE 4
 THREE PHASE "Y" WIRING DIAGRAM
 208/440/460/480/380 VOLTS (PHASE TO PHASE)
 120/254/265/277/220 VOLTS (PHASE TO NEUTRAL)

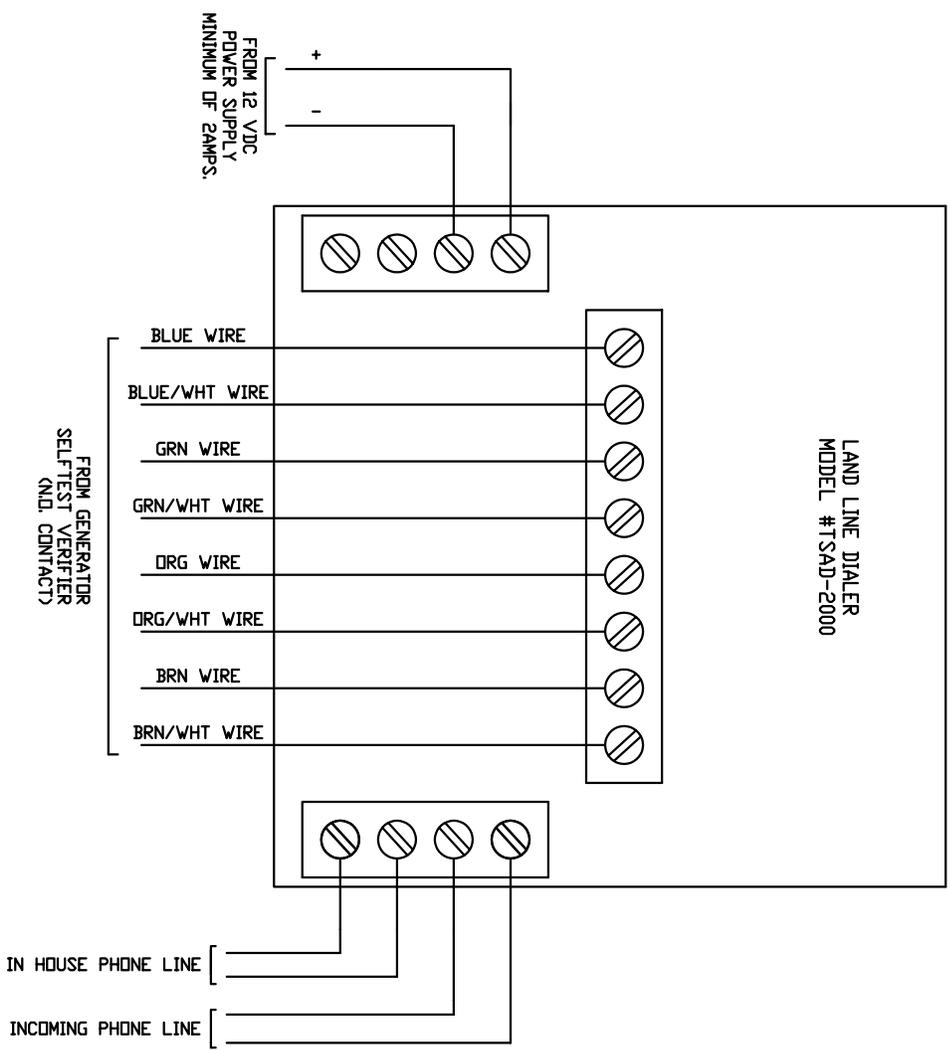
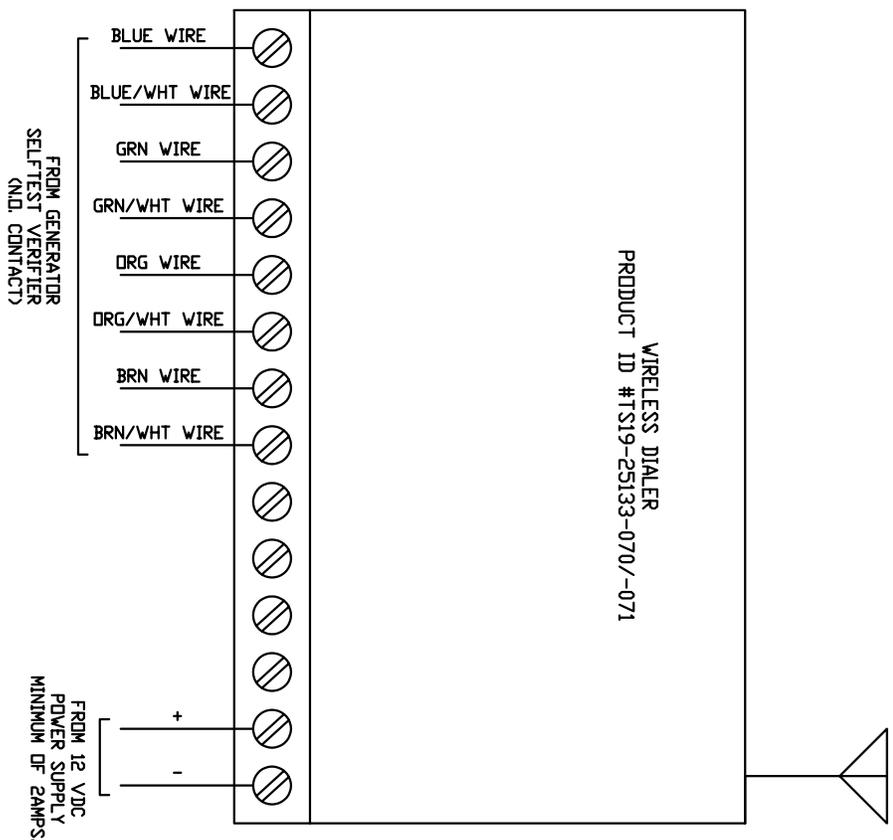


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Generator Selftest Verifier GSV300		DATE	10/07/06
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JOB NO.	EE-GSV300	FIGURE	4
		OF	6

FIGURE 5 OF 6

WIRING DIAGRAMS FOR AUTODIALERS



- INDIVIDUAL OUTPUTS:
- 1) BLUE & BLUE/WHT WIRES (SELFTTEST FAILURE)
 - 2) GRN & GRN/WHT WIRES (GENERATOR ND-START)
 - 3) DRG & DRG/WHT WIRES (DIL CHANGE)
 - 4) BRN & BRN/WHT WIRES (GENERATOR RUNAWAY)

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Generator Selftest Verifier GSV300	
BY TRANSTAR PRODUCTS	
DR. D.L.B.	DATE 10/14/06
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JOB NO.	EE-GSV300
FIGURE	5
OF	6

FIGURE 6 OF 6

WIRING DIAGRAMS FOR REMOTE ALARMS UNDER .1AMP

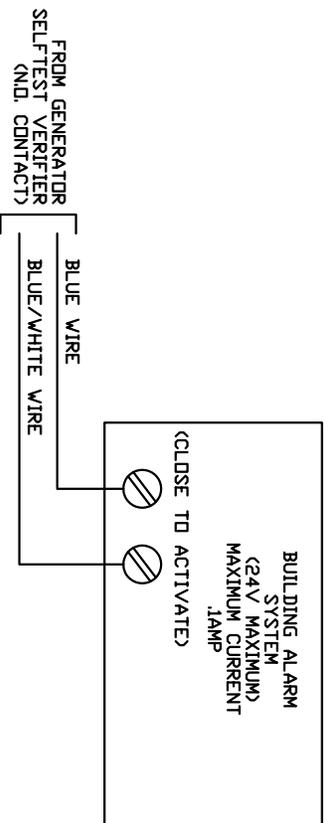
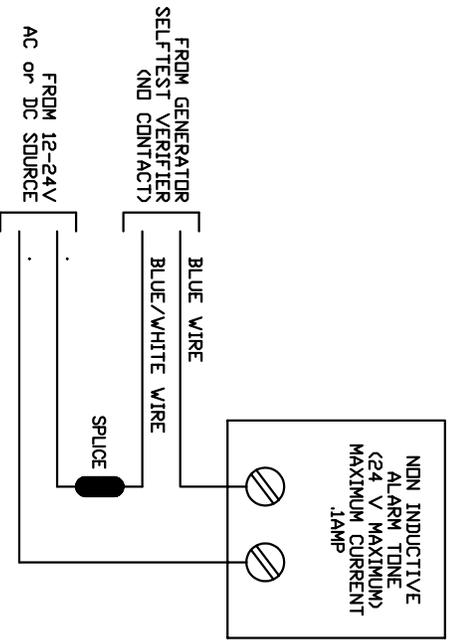
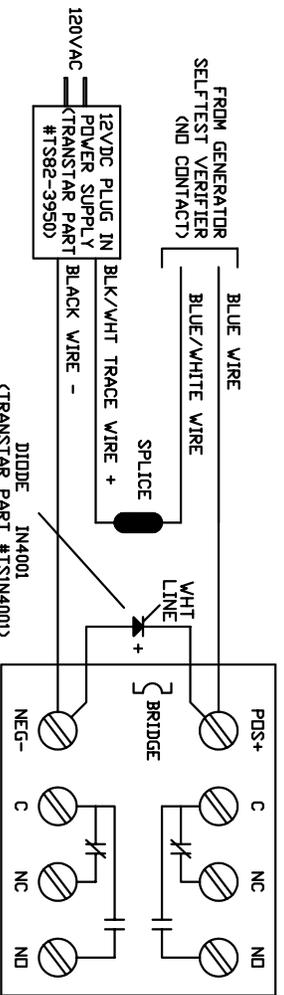


FIGURE 6 OF 6
WIRING DIAGRAMS FOR REMOTE ALARMS OVER .1AMP



- NOTES:
- 1) DIAGRAM SHOWS USING THE BLUE & BLUE/WHT ALARM OUTPUT.
 - 2) REMAINING OUTPUTS MAY BE WIRED IN PARALLEL AS REQUIRED.

- INDIVIDUAL OUTPUTS:
- 1) BLUE & BLUE/WHT WIRES (SELFTEST FAILURE)
 - 2) GRN & GRN/WHT WIRES (GENERATOR NO-START)
 - 3) DRG & DRG/WHT WIRES (OIL CHANGE)
 - 4) BRN & BRN/WHT WIRES (GENERATOR RUNAWAY)

REV. NO.	BY	DATE	REV. NO.	BY	DATE
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4	.	.	8	.	.

DR. D.L.B	DATE 10/14/06
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Generator Selftest Verifier GSV300	FIGURE 6
BY TRANSTAR PRODUCTS	OF 6
JOB NO. EE-GSV300	6