INSTALLATION INSTRUCTIONS

Twenty-Relay Dry Contact Kits PA-279270 & PA-279270-SD For Standby Generators with Microprocessor Controllers

The twenty-relay dry contact kit activates warning devices and other customer-provided accessories to allow monitoring of the standby system from a location remote from the generator set. Lamps, audible alarms, and other devices may be connected to twenty generator functions selected by the customer. Accessories are typically connected to signal engine overspeed, overcrank, high engine temperature, low oil pressure, and low coolant temperature conditions. Use contact kit as an alternate or in conjunction with the remote annunciator panel.

NOTE

A total of three dry contact kits may be connected to the microprocessor controller.

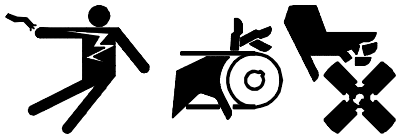
Customer-provided accessories require their own electrical power source and must not exceed the relay contact rating given below. If supply voltage is to be 12 volts DC, make connections to battery positive at starter solenoid, and to battery negative at engine ground. Do not use terminals 42A and N of dry contact kit terminal strip to supply voltage to relay contacts. These must be connected by separate leads directly from the battery. Leads should be sized according to appropriate electrical codes.

RELAY CONTACT RATING

Maximum Switching Voltage	120 volts
AC Maximum Switching Current	10 amps
Minimum Switching Power	10 milliamps
	(at 28 volts DC or equivalent)

NOTE

Applicable local, state, and national electrical codes must be observed when installing the alarm contact kit and related accessories.



⚠ WARNING

Accidental starting.
Can cause severe injury or death.
Disconnect battery cables before working on generator set (negative lead first and reconnect it last).

Accidental starting can cause severe injury or death. Turn generator master switch to OFF position, disconnect power to battery charger, and remove battery cables (remove negative lead first and reconnect it last) to disable generator set before working on any equipment connected to generator. The generator set can be started by automatic transfer switch or remote start/stop switch unless these precautions are followed.

INSTALLATION

1. Move generator master switch to OFF position.
2. Remove generator set battery cables, negative lead first.
3. Remove upper and lower junction box access panels and controller cover.
4. Position the dry contact assembly enclosure (A-260640) against the lower left side of the junction box (facing controller), as shown in Figure 1. Using the enclosure as a template, drill four 0.312-in. (8-mm) diameter holes in the junction box.

   NOTE

   Inspect inside the junction box for adequate clearance before drilling mounting holes.

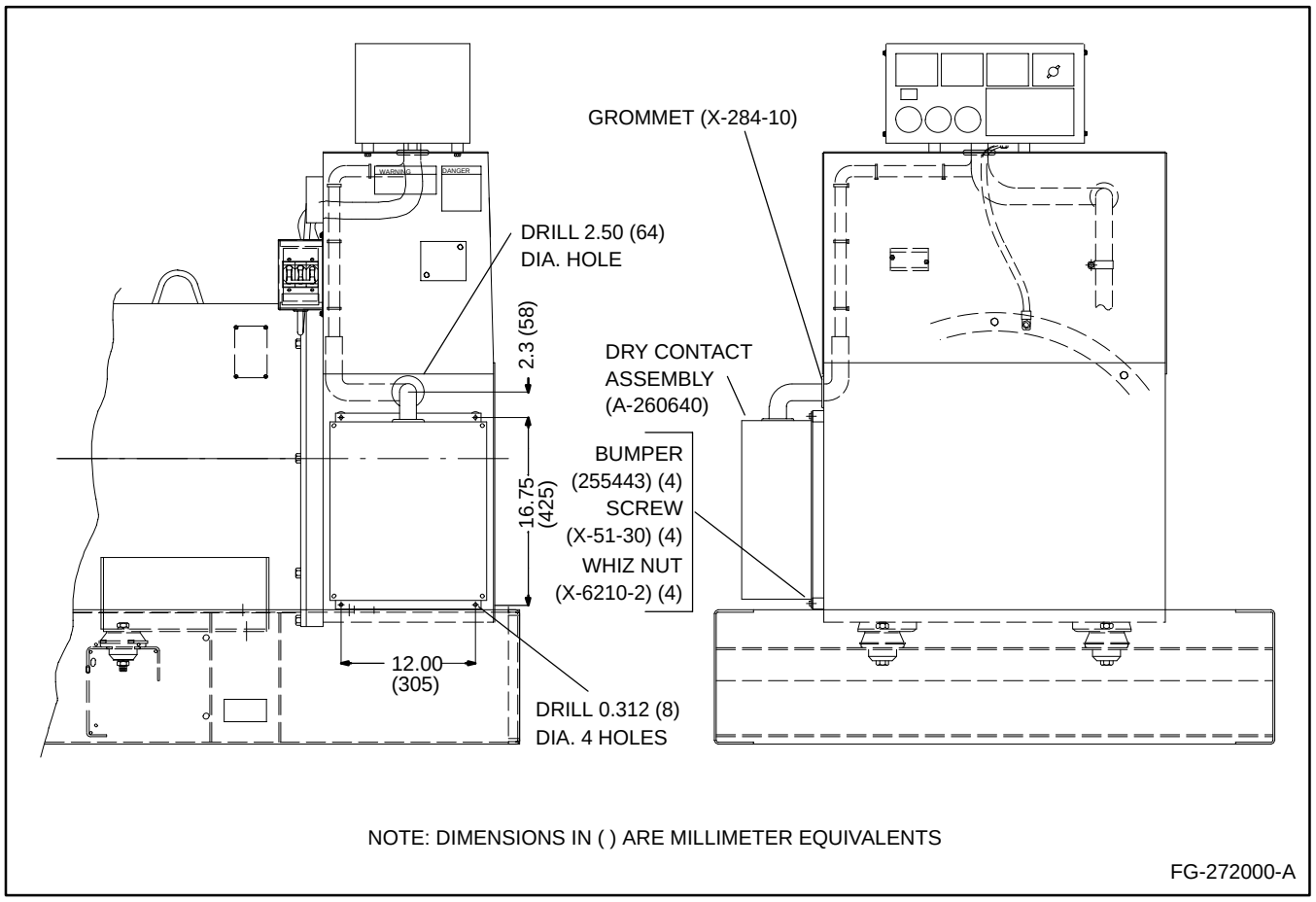


Figure 1. Twenty-Relay Dry Contact Kit

5. Drill one 2.5-in. (64-mm) diameter hole. Locate hole 2.3 in. (58 mm) up from the center of the upper mounting holes of the dry contact assembly enclosure and centered horizontally between the upper mounting holes. Install 2.12 x 2.50 x 0.44-in. grommet (X-284-10) in hole.

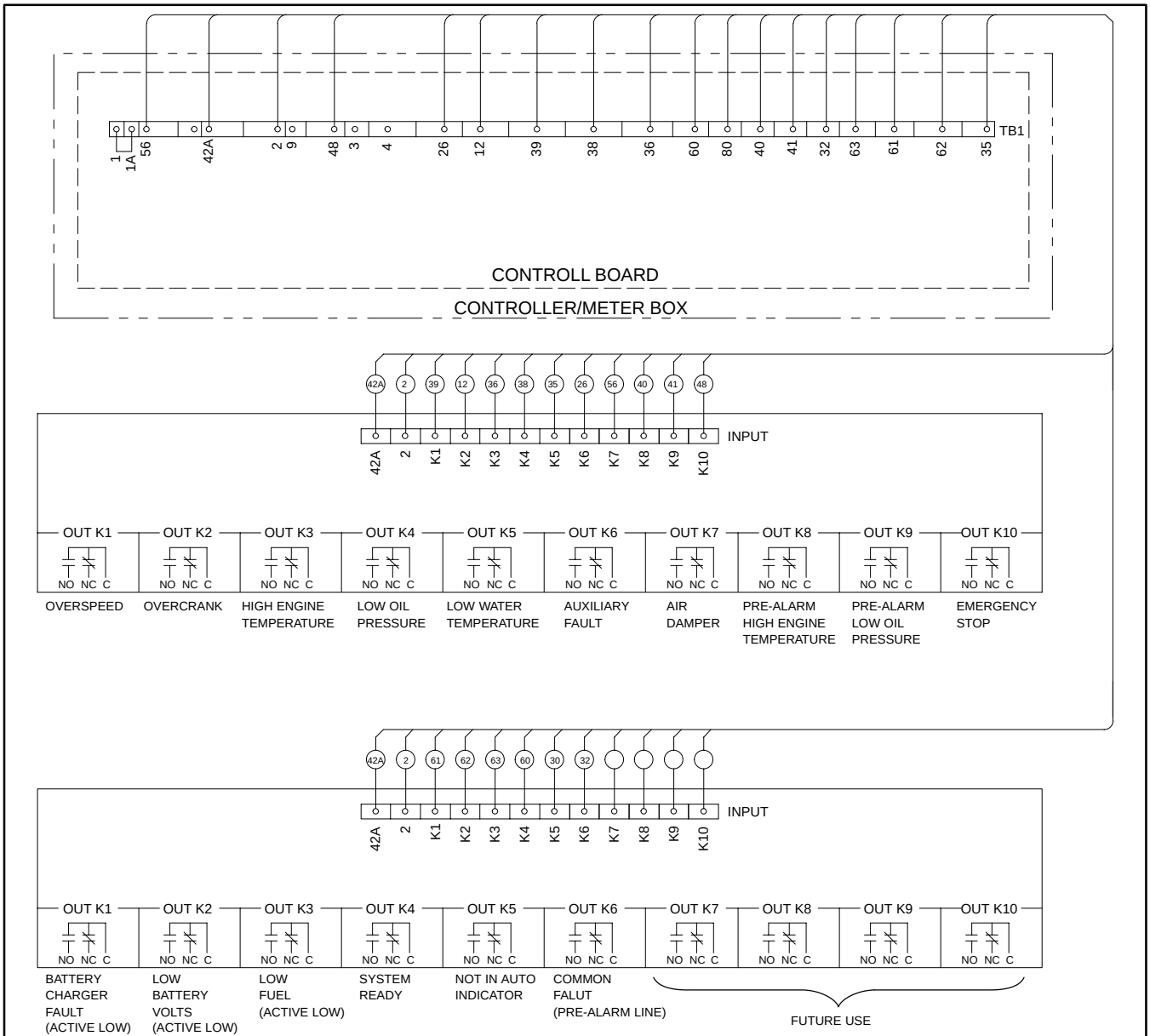
6. Mount contact assembly enclosure to junction box with four 1/4-20 x 0.75-in. r.h.m. screws (X-51-30), bumpers (255443), and whiz nuts (X-6210-2).

7. Insert harness through grommet and route harness along the junction box to the controller assembly. Secure harness with cable ties (not supplied).

8. Connect the twenty-relay dry contact kit to controller circuit board with spade terminals (X-285-1) as shown in Figure 2. Controller/junction box terminals 2 (ground) and 42A (battery voltage) must be connected to dry contact kit terminal strip to provide an electrical source to operate the K1-K10 relays. The customer then has a choice of up to twenty functions (typical functions are indicated on the wiring diagram). Customer-provided devices connected to the dry contact kit must be furnished with an electrical supply adequate to operate the device. Check the electrical requirements of the customer-provided accessories prior to installation to determine wire gauge size.

   When a generator fault condition occurs, the contact kit relay (K1-K10) tied to that function is energized. The customer has the option of selecting normally open or normally closed contacts from each relay depending on application requirements. Devices that are to be activated whenever the generator is running (and no fault is present) are usually connected to the relay normally closed contacts. Devices that are to be activated when the generator has stopped (fault shutdown) are usually tied to the normally open contacts.

9. Reinstall the junction box and controller access covers.



CONTROLLER TERMINAL IDENTIFICATION

TERMINAL ID.	DESCRIPTION	
*78	EMERGENCY-STOP RELAY (K4) GROUND	STANDARD CONTROLLER
*79	EMERGENCY-STOP RELAY (K4) COIL, NEGATIVE	
42A	BATTERY VOLTAGE (FUSE PROTECTED)	
2	GROUND	
*73	REMOTE START GROUND	
*74	REMOTE START (ACTIVE LOW)	
* 9	CRANK MODE (OPEN=CYCLE ; GROUND=CONTINUOUS)	
12	OVERCRANK INDICATOR	
26	AUXILIARY INDICATOR	
32	COMMON FAULT/PRE-ALARM LINE	
36	HIGH ENGINE TEMPERATURE INDICATOR	
38	LOW OIL PRESSURE INDICATOR	
39	OVERSPEED INDICATOR	
56	AIR DAMPER INDICATOR	
60	SYSTEM READY INDICATOR	
*70	BATTERY VOLTAGE (RUN ONLY)	
*7N	GROUND	
80	NOT IN AUTO INDICATOR	
35	LOW WATER TEMPERATURE	PRE-ALARM FUNCTIONS OPTIONAL ADDITIONS
40	PRE-ALARM HIGH ENGINE TEMPERATURE INDICATOR	
41	PRE-ALARM LOW OIL PRESSURE INDICATOR	
*58	LINE POWER	TRANSFER SWITCH OPTIONAL ADDITIONS
*59	GENERATOR POWER	
48	EMERGENCY-STOP INDICATOR	NFPA OPTIONAL ADDITIONS
61	BATTERY CHARGER FAULT (ACTIVE LOW)	
62	LOW BATTERY VOLTS (ACTIVE LOW)	
63	LOW FUEL (ACTIVE LOW)	

* = Not to be annunciated.

FG-272000-A

Figure 2. Wiring Diagram

Parts List

Kits: PA-279270 and PA-279270-SD

Description	Qty.	Part No.
Dry Contact Assembly, twenty-relay (includes *)	1	A-260640
Circuit Board Assembly, ten-relay dry contact *	2	D-294303
Lead *	14	SW02-1803
Lead *	1	SW02-1808
Lead *	1	SW02-1808-2200
Lead *	1	SW02-18186-2202
Lead *	1	SW12-1824-2222
Lead *	1	SW12-1888-2202
Lead *	1	SW26-1888-2202
Lead *	1	SW30-1898-18302
Lead *	1	SW32-1894-2202
Lead *	1	SW35-1888-2202
Lead *	1	SW36-1824-2222
Lead *	1	SW36-1888-2202
Lead *	1	SW38-1824-2222
Lead *	1	SW38-1888-2202
Lead *	1	SW39-1824-2222
Lead *	1	SW39-1888-2202
Lead *	1	SW40-1888-2202
Lead *	1	SW41-1888-2202
Lead *	1	SW48-1894-2202
Lead *	1	SW56-1894-2202
Lead *	1	SW60-1894-2202
Lead *	1	SW61-1894-2202
Lead *	1	SW62-1894-2202
Lead *	1	SW63-1894-2202
Lead *	1	SW70-1886-2202

Parts List

Kits: PA-279270 and PA-279270-SD, cont'd,

Description	Qty.	Part No.
Lead *	1	SW73-1898-2202
Lead *	1	SW74-1898-2202
Lead *	1	SW75-1898-2202
Lead *	1	SW78-1898-2202
Lead *	1	SW79-1898-2202
Lead *	1	SW80-1894-2202
Lead *	1	T131-1886-5702
Lead *	1	T132-1886-5702
Lead *	1	T133-1886-5702
Lead *	1	T42A-1816-2222
Lead *	1	T42A-1888-2202
Grommet, 2.12 x 2.50 x 0.44 in. *	1	X-284-10
Tie, cable *	12	X-468-1
Tie, cable *	1	X-468-7
Conduit, convoluted *	1	X-6003-101
Stud, self-clinching *	12	X-6205-3
Nut, hex *	12	X-70-12
Spacer *	12	X-712-9
Enclosure *	1	262854
Panel *	1	262855
Block, terminal *	1	273769
Strip, marker *	1	279271
Harness, wiring *	1	279818
Grommet, 2.12 x 2.50 x 0.44 in.	1	X-284-10
Terminal, spade	25	X-285-1
Screw, 1/4-20 x 0.75 in. r.h.m.	4	X-51-30
Bumper	4	255443
Nut, 1/4-20 whiz	4	X-6210-2