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## INSTALLATION INSTRUCTIONS

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### Five-Relay Dry Contact Kits

#### PA-282936 (12-Volt) for Use with R-Series™ Units with NFPA Option and Fast-Response™ II Generator Sets.

#### PA-282937 (24-Volt) for Use with Fast-Response™ II Generator Sets

The 5-relay dry contact kit uses relays to trigger customer-provided warning devices if a fault condition occurs, allowing monitoring of the standby system and/or the ability to activate accessories from a location remote from the generator set. Lamps, audible alarms, or other devices may be connected to up to five generator functions selected by the customer. Accessories are typically connected to signal an overspeed condition, overcrank, high engine temperature, low oil pressure, or low water temperature condition. The dry contact kit is shown in Figure 1. Use the dry contact kit as an alternate or in conjunction with the remote annunciator panel.

#### NOTE

A total of three dry contact kits and/or annunciator panels may be connected to the controller. When three annunciator panels are used, the 3-amp fuse in the controller must be replaced with a 5-amp fuse.

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 2 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 Current	10 amps
Maximum Voltage	250 AC

#### NOTE

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



#### **Accidental starting.**

#### **Can cause severe injury or death.**

Disconnect battery cables before working on generator set (negative lead first and reconnect it last).

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**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.

#### MOUNTING

The dry contact kit should be mounted in the junction box and connected to the controller or connection box with the harness provided. Alternate locations include, top of junction box, top of generator skid, or other location as near to the controller as possible. (Mounting hardware is not provided with the kit.) Use of a connection box is recommended to allow easy connection and disconnection of generator accessories.

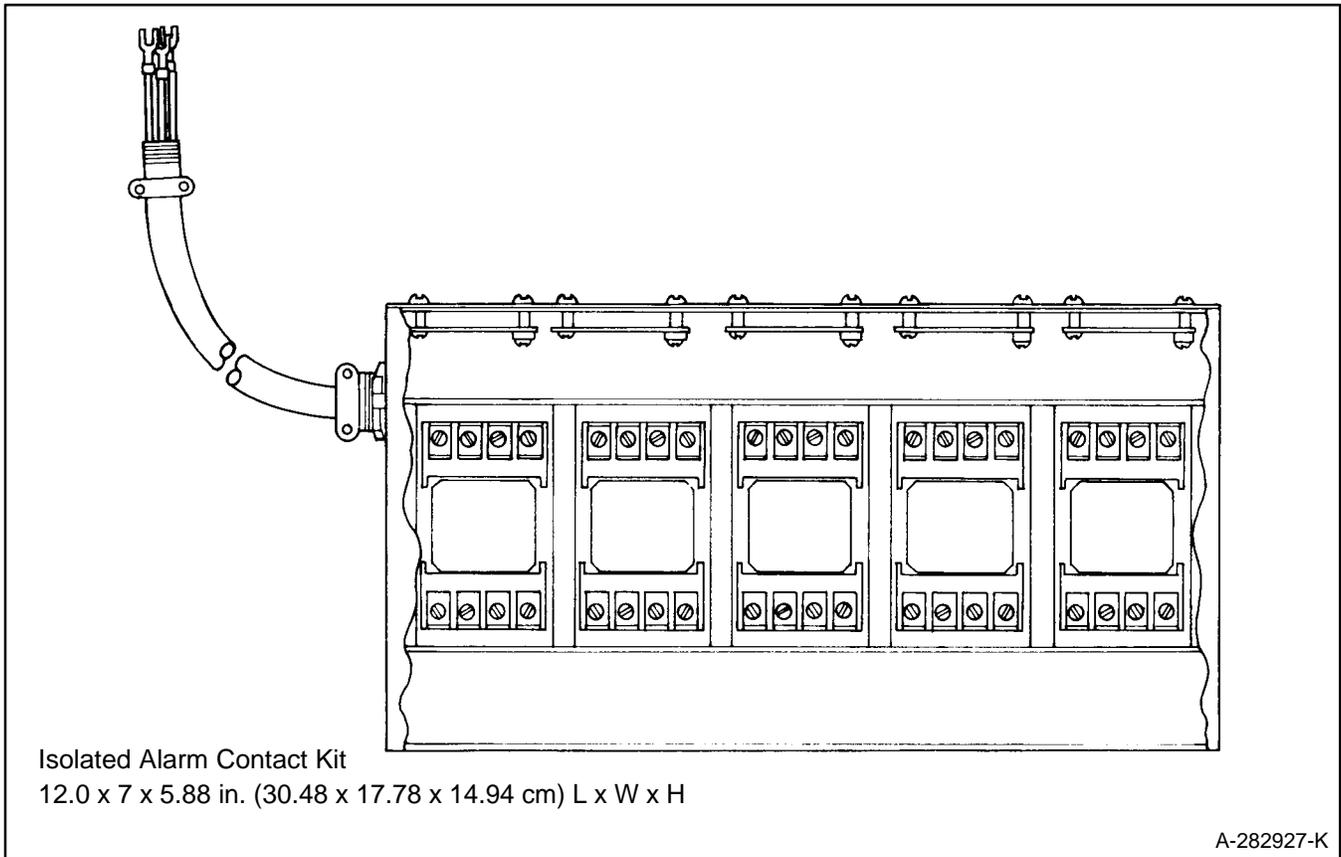
#### ELECTRICAL CONNECTIONS

Connect the dry contact kit according to the wiring diagram shown in Figure 2. Controller/junction box terminal 2 (ground) should be connected to harness

lead 2, and 42A (battery voltage) must be connected to harness lead 3 to provide an electrical source to operate the relays. The customer then has a choice of up to five generator functions (terminal 64 on each relay) to activate the appropriate accessories. Typical functions are indicated on the wiring diagram. Customer-provided devices connected to the isolated alarm kit must be furnished with an electrical supply adequate to operate the device. Check electrical requirements of

customer-provided accessories prior to installation to determine wire gauge size.

When a generator fault condition occurs, the relay tied to that function is energized. The customer has the option of selecting normally open (terminals 4 and 6) or normally closed (terminals 1 and 3) terminals of each relay to connect the appropriate accessories. (Terminals 7 and 9 of each relay are common terminals.)



**Figure 1. Five-Relay Dry Contact Kit**

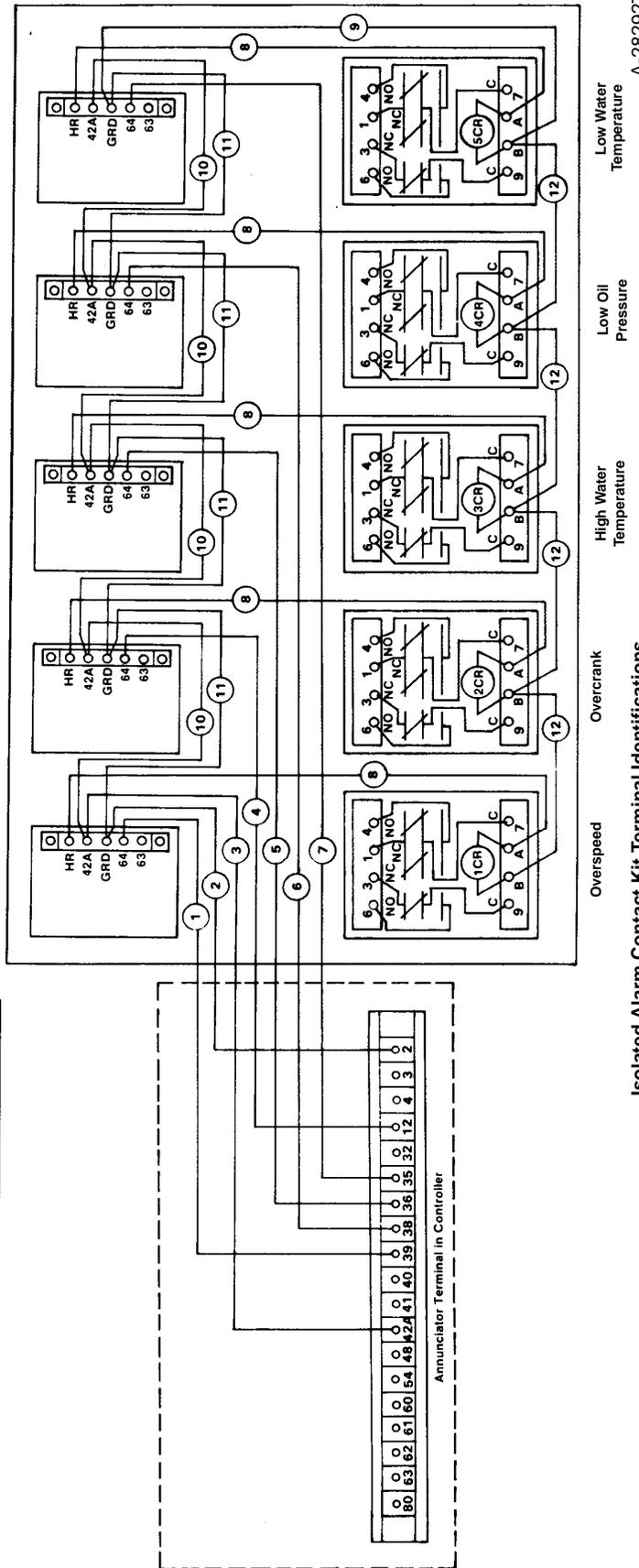
**JUNCTION BOX TERMINAL FUNCTIONS**

Function	Terminal No.
Battery Ground	2 )
Battery Positive	42A)
Common Fault Line	32 )
Overspeed	39 )
Emergency Stop	48 )
Low Oil Pressure	38. )
High Water Temperature	36 )
Switch Off	80 )
Overcrank	12 )
Line Power	58 )
Generator Power	59 )
Low Water Temperature	35 )
Antic. High Water Temp.	40 )
Antic. Low Oil Pressure	41 )
Low Fuel	63 )
Low Battery Voltage	62 )
High Battery Voltage	61 )
System Ready	60 )
System Ready — B+	54 )

— Standard Controller

— Anticipatory Function Option Additions

— NFPA Option Additions



**Isolated Alarm Contact Kit Terminal Identifications**

A-282927-K

**Figure 2. Wiring Diagram**

## Parts List

### Kits PA-282936 & PA-282937

Description	Qty.	Part Number
Kit PA-282936 Contact Assembly, 12 volt (includes *)	1	A-282927
Kit PA-282937 Contact Assembly, 24 volt (includes *)	1	A-282928
Relay, 12 volt (Contact Assembly A-287927) *	5	241600
Relay, 24 volt (Contact Assembly A-282928) *	5	291309
Circuit Board Assembly, five-relay *	5	A-287924
Lead *	1	LB-2059-2200
Lead *	1	LE-2013-2200
Lead *	1	LE-2016-2200
Lead *	1	LE-2019-2200
Lead *	1	LE-2020-2200
Lead *	1	LE-2025-2200
Lead *	1	LG-2058-2200
Lead *	1	LJ-2069-2200
Lead *	1	LO-2072-2200
Lead *	1	LR-2007
Lead *	1	LR-2064-2200
Lead *	1	LW-2004-2222
Lead *	1	LW-2007
Lead *	1	LW-2013-2200
Lead *	1	LW-2057-2200
Lead *	1	LY-2006-2200
Lead *	1	LE-2013-2200
Washer, #8 internal/external tooth lock *	3	X-22-18
Insulug Terminal, spade (22- to 16-gauge) *	14	X-285-1
Insulug Terminal, spade (22- to 16-gauge) *	29	X-285-9
Plug, 0.875 in. steel button *	1	X-301-33
Screw, 6-32 x 0.250 in. r.h.m *	15	X-49-25
Screw, 8-32 x 0.312 in. r.h.m *	3	X-51-14
Conduit *	1	X-6003-85
Track, mounting *	1	X-6008-3
Connector *	2	X-6027-7
Screw, 8-18 x 0.56 in. drill *	12	X-794-2
Socket assembly *	5	291273
Box, junction *	1	292844-KCB
Panel *	1	292845-KCB
Panel *	1	292846-KCB