
INSTALLATION INSTRUCTIONS

Original Issue Date: 2/99

Model: 1250–2000 kW (Detroit Diesel Series 4000 Engines)

Market: Industrial

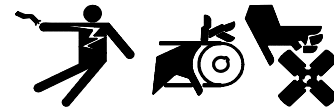
Subject: **Safeguard Circuit Breaker Kits PA-361718, PA-361718-SD, PA-361719, PA-361719-SD, PA-361720, PA-361720-SD, PA-361721, PA-361721-SD, PA-361722, PA-361722-SD**

The safeguard circuit breaker kit protects the generator set from a short circuit. The safeguard circuit breaker matches the generator set characteristics, differentiating it from conventional circuit breakers. See Figure 1 for circuit breaker ratings. If the generator set has a meterless controller, a current transformer kit must be ordered. Observe the following safety precautions while installing the kit.

Kit No.	Amps
PA-361718, PA-361718-SD	3.0
PA-361719, PA-361719-SD	3.5
PA-361720, PA-361720-SD	4.0
PA-361721, PA-361721-SD	4.5
PA-361722, PA-361722-SD	5.0

Figure 1. Safeguard Circuit Breaker Kits

⚠ WARNING



**Accidental starting.
Can cause severe injury or death.**

Disconnect the battery cables before working on the generator set. Remove the negative (–) lead first when disconnecting the battery. Reconnect the negative (–) lead last when reconnecting the battery.

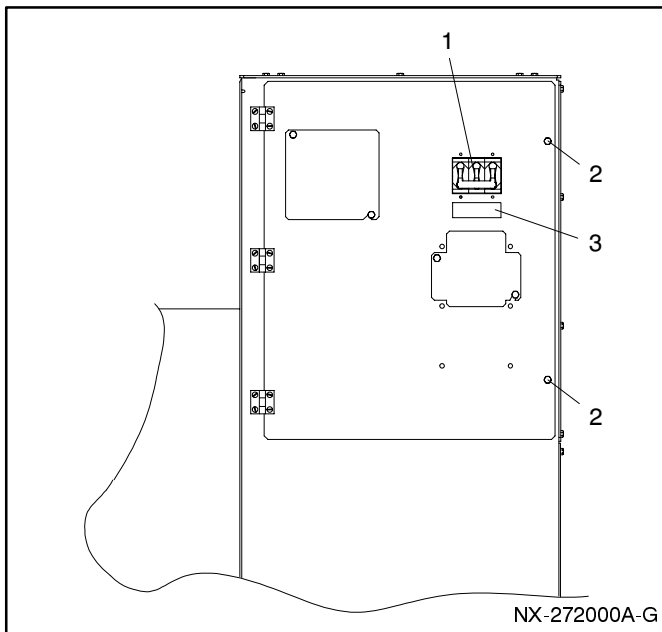
Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows:

- (1) Move the generator set master switch to the OFF position.
- (2) Disconnect the power to the battery charger.
- (3) Remove the battery cables, negative (–) lead first. Reconnect the negative (–) lead last when reconnecting the battery.

Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

Installation

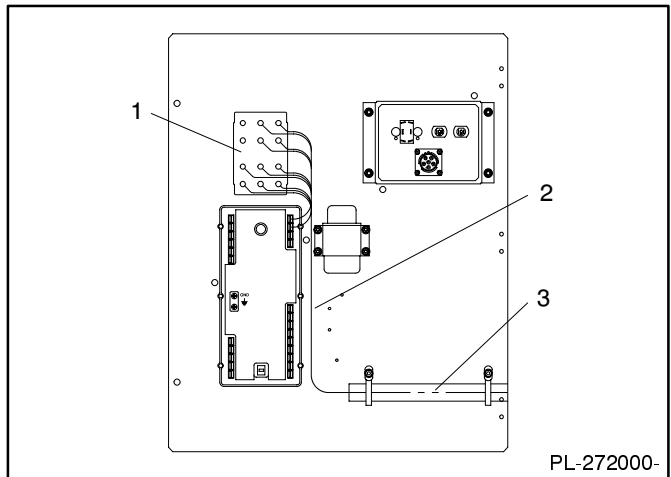
1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the generator set engine starting battery(ies), negative (-) lead first.
4. Remove the two junction box inner panel access door bolts. See Figure 2.
5. Remove the safeguard circuit breaker knockout. While supporting the door place a wood block behind the knockout and strike the wood block with a hammer to remove the knockout. See Figure 2.
6. Install the safeguard circuit breaker in the junction box inner panel access door. Secure the circuit breaker to the door with four #6-32 x 0.5 in. slotted pan head screws (X-49-26) and four #6 internal tooth lock washers (X-22-6).
7. Verify that the circuit breaker is in the OFF position.
8. Clean and dry the surface below the safeguard circuit breaker and apply the safeguard breaker decal (293667). See Figure 2.
9. Route the safeguard circuit breaker wiring harness (361540) through the existing convoluted tubing on the inside of the junction box inner panel access door. See Figure 3.



1. Safeguard circuit breaker knockout
2. Access door bolts
3. Safeguard breaker decal (293667)

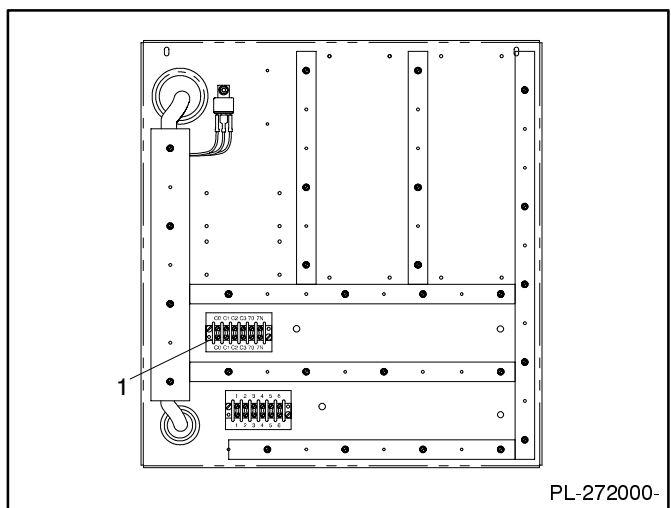
Figure 2. Junction Box Inner Panel Access Door

10. Wire the safeguard circuit breaker. See Figure 5 for the wiring connections to a local mounted voltage regulator. See Figure 6 for the wiring connections to a remote mounted voltage regulator. See Figure 4 for location of the safeguard terminal strip (TB5) on the junction box inner panel.
11. After completing the wiring connections close the junction box inner panel access door and reinstall the two bolts removed in step 4.
12. Check that the generator master switch is in the OFF position.
13. Reconnect the generator set engine starting battery, negative (-) lead last.
14. Reconnect the power to the battery charger, if equipped.



1. Local mounted voltage regulator
2. Safeguard breaker wiring harness (361540)
3. Convoluted tubing

Figure 3. Junction Box Inner Panel Access Door—Rear View



1. Safeguard terminal strip—TB5

Figure 4. Junction Box Inner Panel

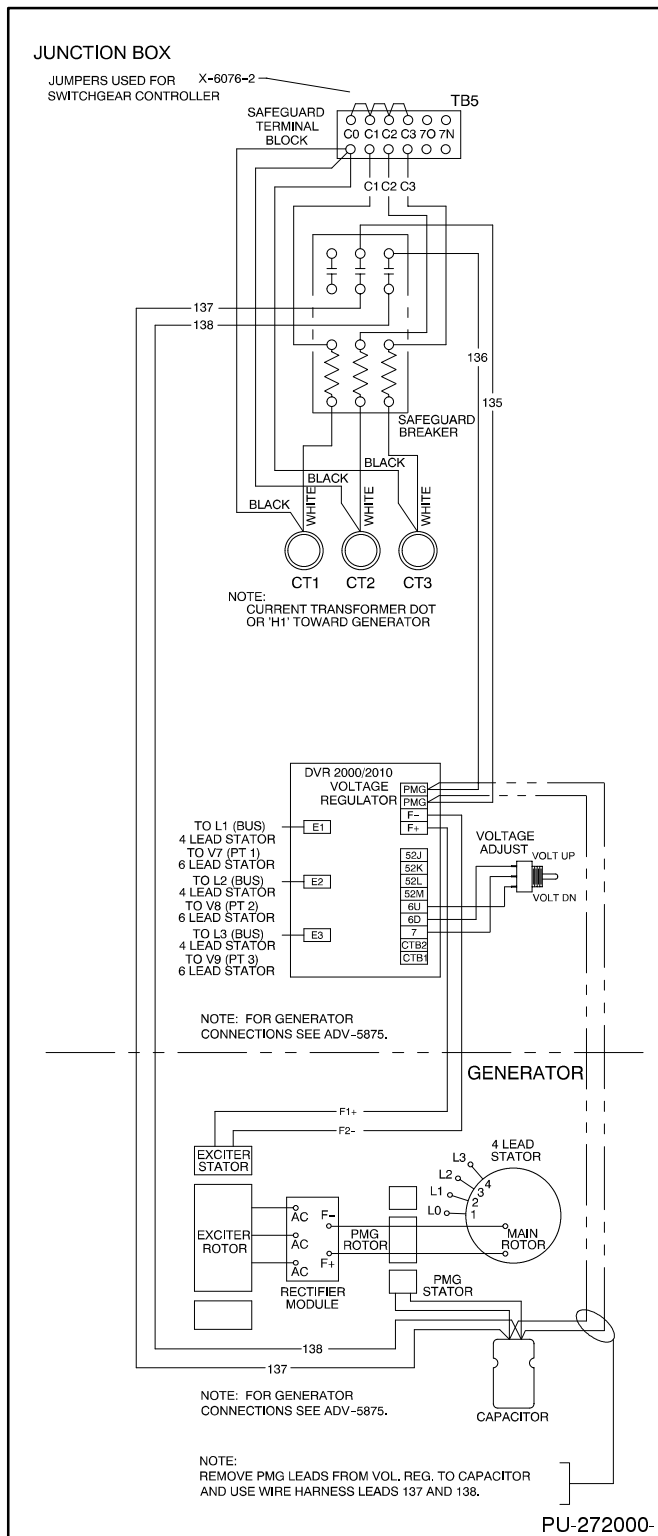


Figure 5. Safeguard Circuit Breaker Wiring with a Local-Mounted Voltage Regulator

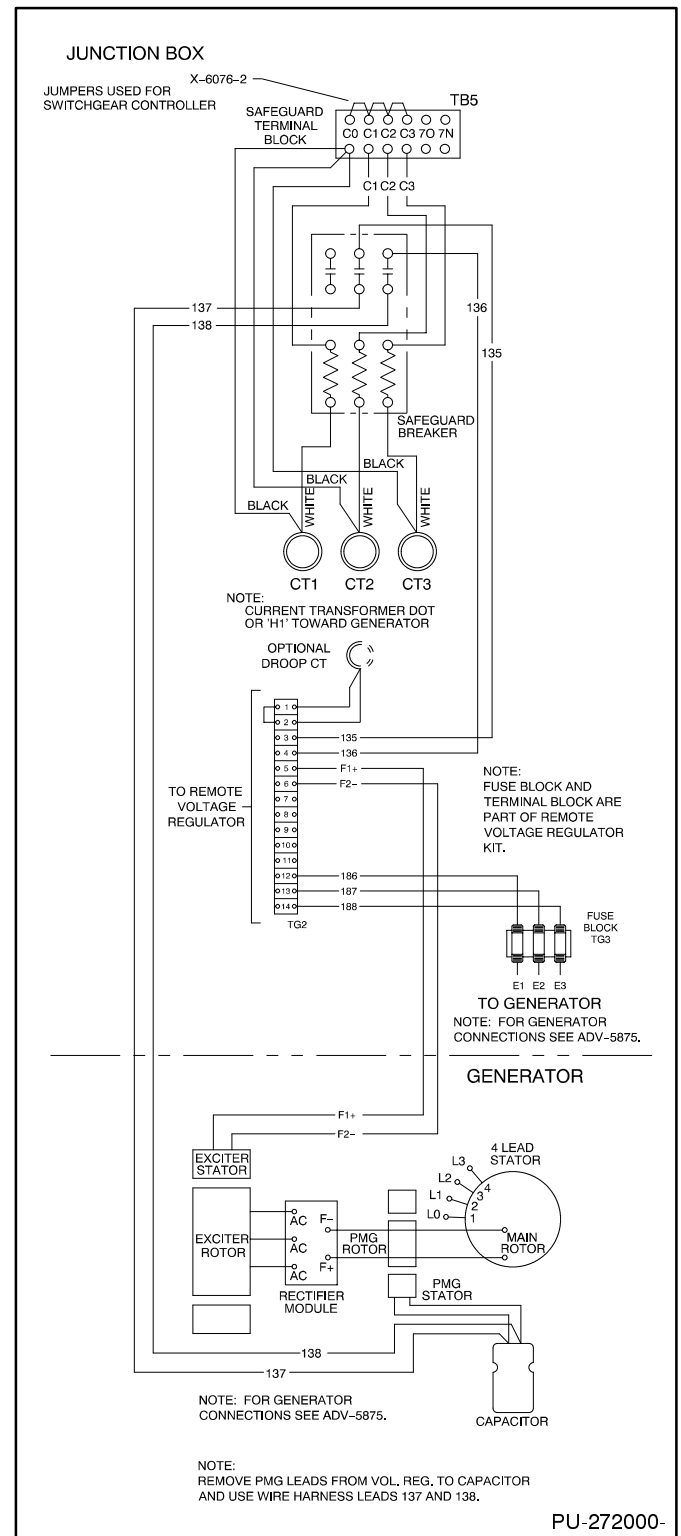


Figure 6. Safeguard Circuit Breaker Wiring with a Remote-Mounted Voltage Regulator

Safeguard Circuit Breaker Kits

Parts List					
Kits: PA-361718, PA-361718-SD, PA-361719, PA-361719-SD, PA-361720, PA-361720-SD			Unique Parts		
Qty.	Description	Common Parts	PA-361718 PA-361718-SD	PA-361719 PA-361719-SD	PA-361720 PA-361720-SD
4	Washer, internal tooth #6	X-22-6			
4	Screw, phm, 6-32 x 0.50 in.	X-49-26			
1	Breaker, circuit		X-796-4	X-796-3	X-796-1
1	Decal, safeguard breaker	293667			
1	Harness, safeguard breaker	361540			

Safeguard Circuit Breaker Kits

Parts List				
Kits: PA-361721, PA-361721-SD, PA-361722, PA-361722-SD			Unique Parts	
Qty.	Description	Common Parts	PA-361721 PA-361721-SD	PA-361722 PA-361722-SD
4	Washer, internal tooth #6	X-22-6		
4	Screw, phm, 6-32 x 0.50 in.	X-49-26		
1	Breaker, circuit		X-796-2	X-796-6
1	Decal, safeguard breaker	293667		
1	Harness, safeguard breaker	361540		