

INSTALLATION INSTRUCTIONS

Original Issue Date: 1/96

Model: 20-300 kW

Market: Industrial and Marine

Subject: Current Transformer Kits for Safeguard Circuit Breaker Kits

Introduction

This instruction sheet applies to the following current transformer kits.

Current Transformer Kits	
PA-324178-PA-324195	PA-324178-SD-PA-324195-SD
PA-325383-PA-325388	PA-325383-SD-PA-325388-SD
PA-343300	PA-343300-SD
PA-352670	PA-352670-SD
PA-360378	PA-360378-SD
GM10296-KA1	GM10296-KA1S
GM10298-KA1	GM10298-KA1S
GM10299-KA1	GM10299-KA1S
GM10656-KA1	GM10656-KA1S
GM10657-KA1	GM10657-KA1S
GM11691-KA1	GM11691-KA1S
GM11692-KA1	GM11692-KA1S
GM12339-KA1	GM12339-KA1S

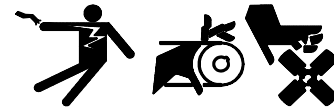
Generator sets equipped with meterless controls have no current transformers. The safeguard circuit breaker kit requires current transformers. Install the current transformers after installing the safeguard circuit breaker kit.

Read the entire installation procedure and compare the kit parts with the hardware parts list and the transformer, bracket and lead parts list at the end of this publication before beginning installation. Perform the steps in the order shown.

Safety Precautions

Observe the following safety precautions while installing the kit.

⚠ 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.

⚠ WARNING



Hazardous voltage. Moving rotor.
Can cause severe injury or death.

Operate the generator set only when all guards and electrical enclosures are in place.

Disconnecting the electrical load. Hazardous voltage can cause severe injury or death.

Disconnect the generator set from the load by opening the line circuit breaker or by disconnecting the generator set output leads from the transfer switch and heavily taping the ends of the leads. High voltage transferred to the load during testing may cause personal injury and equipment damage. Do not use the safeguard circuit breaker in place of the line circuit breaker. The safeguard circuit breaker does not disconnect the generator set from the load.

Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove wristwatch, rings, and jewelry before servicing the equipment.

Installation

- 1.1 Place the generator set master switch in the OFF position.
- 1.2 Disconnect the AC power to the battery charger, if equipped.
- 1.3 Disconnect the generator set engine starting battery, negative (-) lead first.
- 1.4 Remove the screws from the left side junction box panel and remove the panels.

Note: Mount CT1 closest to the engine.

Note: Place all current transformers with the Dot or HI mark toward the generator set output leads.

- 1.5 Secure CT1, CT2, and CT3 to generator set alternator using the bracket and mounting screws supplied with the kit. See Figure 1.

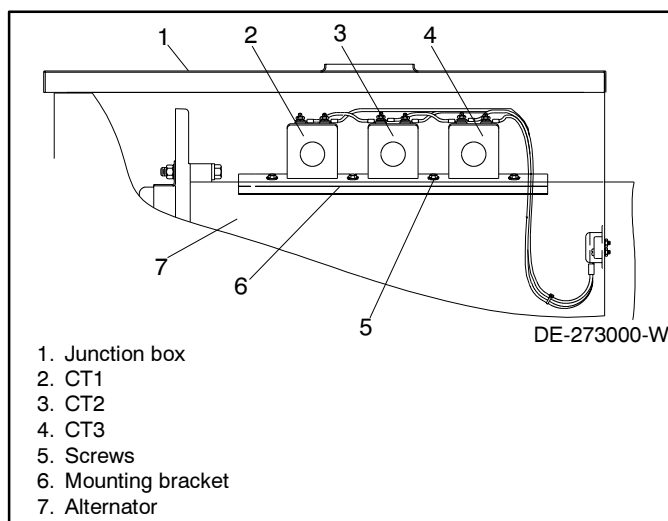


Figure 1 Current Transformer Installation, Typical

- 1.6 For generator sets with 120/240-volt connections place the generator set output leads through the current transformer **one** turn. For generator sets with 480-volt connections route the generator set output leads through the current transformer **two** turns. See Figure 2 and Figure 3.
- 1.7 Attach the jumper (X-6076-2) to terminals C0, C1, C2 and C3 on the TB5 terminal strip.

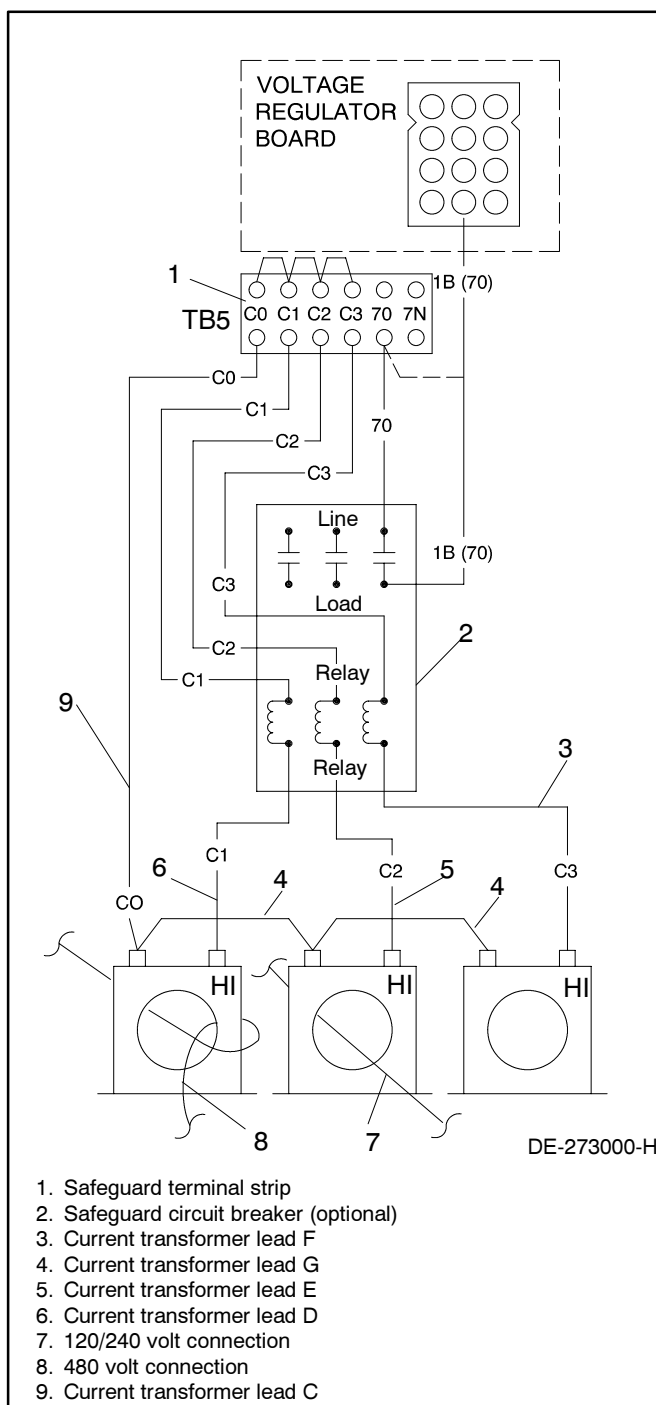


Figure 2 Current Transformer Circuit Connections

- 1.8 Make remaining current transformer connections as shown in Figure 2. See Figure 4 for the safeguard circuit breaker location.
- 1.9 Check that the generator set master switch is in the OFF position.
- 1.10 Reconnect the generator set engine starting battery, negative (-) lead last.
- 1.11 Reconnect power to the battery charger, if equipped.

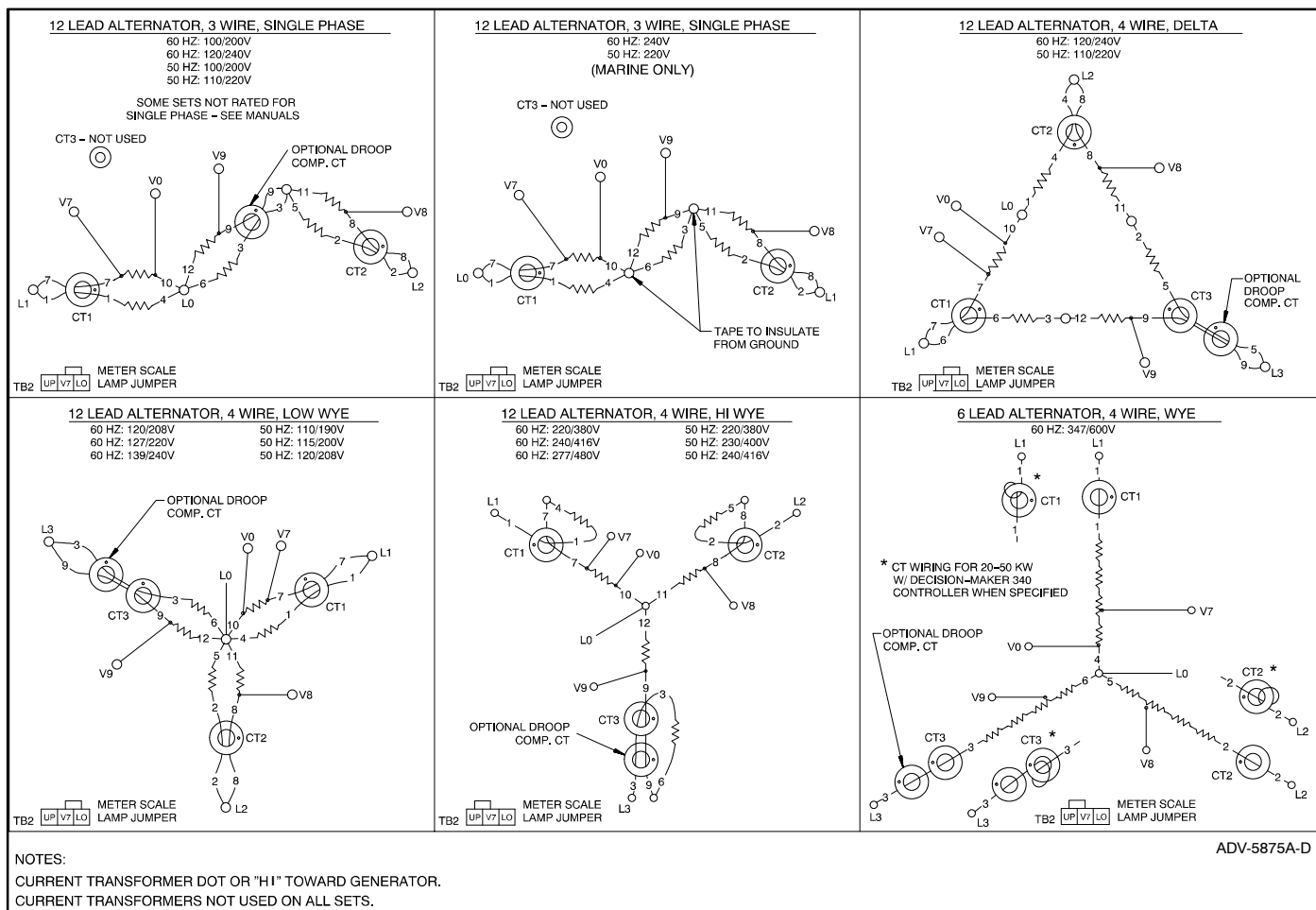


Figure 3 Generator Connections

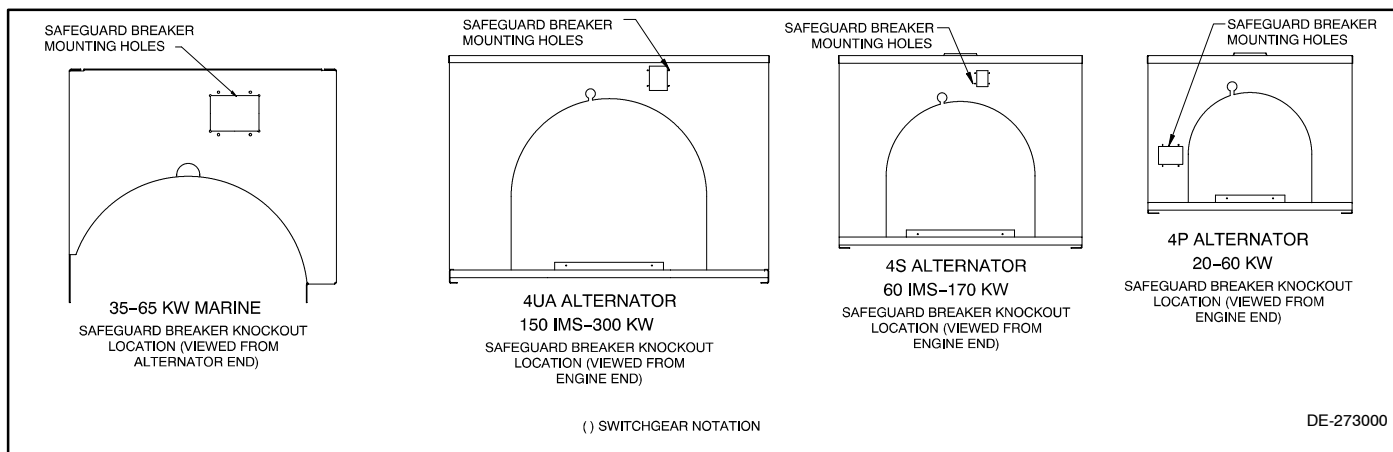


Figure 4 Safeguard Breaker Location

Hardware Parts List

Current Transformer Kits

Kits: All				
Qty.	Description	PA-324178-324184(-SD), PA-324186-324195(-SD), PA-352670(-SD), PA-360378(-SD), GM11691-KA1(S), GM11692-KA1(S)	PA-324185(-SD), PA-325383-325388(-SD), PA-343300(-SD), GM12339-KA1(S)	GM10296-KA1(S), GM10298-KA1(S), GM10299-KA1(S), GM10656-KA1(S), GM10657-KA1(S)
1	Wire, 18GA white, 8-13 ft.	20219 02318		20219 02318
1	Wire, 16GA white, 8-13 ft.		20219 02316	
11	Terminal, ring, male, 16-14 AWG		X-283-3	
1	Terminal, spade, 16-14 AWG		X-285-5	
	Terminal, ring, male, 22-16 AWG	X-283-7, Qty. 4		X-283-7, Qty. 2
	Terminal, ring, male, 22-16 AWG	X-283-8, Qty. 8		X-283-8, Qty. 6
1	Jumper	X-6076-2	X-6076-2	X-6076-2
4	Screw, hex washer head, drill	X-794-1	X-794-1	X-794-1

Transformer, Bracket and Lead Parts List

Current Transformer Kits

Kit Number	Current Transformer (Qty.)	Bracket	Current Transformer Leads							
			Lead C	Lead D	Lead E	Lead F	Lead G			
PA-324178(-SD)	259359 (3)	276417	SWC0-1830-1414	SWC1-1830-1414	SWC2-1830-1414	SWC3-1830-1414	SWC0-1830-1414 (2)			
PA-324179(-SD)	259360 (3)									
PA-324180(-SD)	259414 (3)									
PA-324181(-SD)	255860 (3)									
PA-324182(-SD)	253503 (3)									
PA-324183(-SD)	273257 (3)									
PA-324184(-SD)	253610 (3)									
PA-324185(-SD)	272691 (3)	325382	SWC0-1630-1423	SWC1-1635-1414	SWC2-1635-1414	SWC3-1635-1414	LW-1608-1414 (2)			
PA-324186(-SD)	255860 (3)	276417	SWC0-1830-1414	SWC1-1830-1414	SWC2-1830-1414	SWC3-1830-1414	SWC0-1830-1414 (2)			
PA-324187(-SD)	253503 (3)									
PA-324188(-SD)	273257 (3)	299966								
PA-324189(-SD)	253610 (3)									
PA-324190(-SD)	259793 (3)	276417								
PA-324191(-SD)	259792 (3)									
PA-324192(-SD)	259359 (3)									
PA-324193(-SD)	259360 (3)									
PA-324194(-SD)	259414 (3)									
PA-324195(-SD)	279272 (3)	325382						SWC0-1616-1423	SWC1-1635-1414	SWC2-1635-1414
PA-325383(-SD)	272691 (3)									
PA-325384(-SD)	279272 (3)									
PA-325385(-SD)	279273 (3)									
PA-325386(-SD)	273258 (3)									
PA-325387(-SD)	272678 (3)									
PA-325388(-SD)	272690 (3)									
PA-343300(-SD)	343297 (3)	276417	SWC0-1830-1414	SWC1-1830-1414	SWC2-1830-1414	SWC3-1830-1414	SWC0-1830-1414 (2)			
PA-352670(-SD)	253274 (3)					N/R	SWC0-1830-1414			
PA-360378(-SD)	253502 (3)									
GM10296-KA1(S)	253502 (2)									
GM10298-KA1(S)	253503 (2)	299966				SWC0-1830-1414	SWC1-1830-1414	SWC2-1830-1414	N/R	SWC0-1830-1414
GM10299-KA1(S)	273257 (2)									
GM10656-KA1(S)	259359 (2)	276417								
GM10657-KA1(S)	259414 (2)									
GM11691-KA1(S)	273258 (3)	325382							SWC3-1830-1414	SWC0-1830-1414 (2)
GM11692-KA1(S)	279273 (3)									
GM12339-KA1(S)	GM11472 (3)	299966	SWC0-1616-1423	SWC1-1635-1414	SWC2-1635-1414				SWC3-1635-1414	LW-1608-1414 (2)