
INSTALLATION INSTRUCTIONS

Original Issue Date: **6/95**

Model: **20-2000 kW**

Market: **Industrial**

Subject: **Set Mounted Manual Paralleling Controller Kits 325614-333131**

The manual paralleling controller provides an economical method of manually paralleling two generator sets. An oversized controller box mounted on the generator set encloses the synchronizer controls. When two generator sets are operated in parallel the manual paralleling controller allocates the total load between the generator sets in proportion to their power ratings.

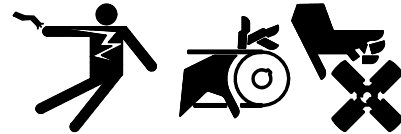
The manual paralleling controller is designed to parallel similar generator set families (20-300 kW or 350-2000 kW). The manual paralleling controller cannot parallel two generator sets from different manufacturers. The manual paralleling controller can parallel only generator sets with the same rotor pitch, electronic governor, and voltage regulator. Generator sets with the manual paralleling controller must contain an electronic governor, reactive droop compensator, and shunt-trip circuit breaker.

The manual paralleling controller utilizes the features of the 16-light microprocessor controller with the added feature of manual paralleling. For identification of the manual paralleling controller features and an explanation of their function, refer to the appropriate generator set operation manual.

Before the manual paralleling controller is used, perform the Initial Setup and Test procedure in the generator set operation manual. Have a qualified technician perform the reactive droop compensator setup, load sharing module setup, and reverse power relay tests.

The manual paralleling controller operates as a single unit or in parallel with another generator set. See the appropriate operation procedure in the generator set operation manual.

⚠ 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 set 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 set. The generator set can be started by automatic transfer switch or remote start/stop switch unless these precautions are followed.

⚠ WARNING



Hazardous voltage.



Moving rotor.

Can cause severe injury or death.

Do not operate generator set without all guards and electrical enclosures in place.

Hazardous voltage can cause severe injury or death. Whenever electricity is present, there is the hazard of electrocution. Open main circuit breaker on all power sources before servicing equipment. Electrically ground the generator set and electrical circuits when in use. Never come into contact with electrical leads or appliances when standing in water or on wet ground, as the chance of electrocution is increased under such conditions.

Hazardous voltage can cause severe injury or death. Reconnect battery correctly to avoid electrical shock and damage to battery charger and battery(ies). Have a qualified electrician perform installation.

Hazardous voltage 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 adjustments are made. Remove wristwatch, rings, and jewelry that can cause short circuits.

Installation

1. Turn generator set controller master switch to OFF position, disconnect power to battery charger, and remove battery cables (remove negative (–) lead first and connect it last) to disable generator set before working on any equipment connected to generator set.
2. Use corresponding wiring diagram found in the supplied manual paralleling controller wiring diagram manual for installation of the manual paralleling controller.
3. Remove the top of the generator set controller.
4. Disconnect controller harness leads inside controller.
5. Remove junction box panels and disconnect controller harness leads inside junction box. Use caution not to disconnect any engine harness leads. Remove the original controller harness.
6. Unbolt and remove the original generator set controller.
7. Remove the top of the manual paralleling controller and bolt the manual paralleling controller to the top of the junction box using hardware removed in step 6.
8. Disconnect stator leads as needed to remove existing current transformers. Take notes as necessary to correctly reconnect stator leads later.
With 20-300 kW models remove four bolts securing current transformers and bracket to alternator assembly inside junction box (if equipped). Install current transformers supplied in the kit. Secure current transformers with bracket to alternator assembly.

NOTE

Mount current transformers with dot or HI mark toward generator.

With 350-2000 kW models remove original current transformers from main current leads inside junction box and replace with transformers

supplied in the kit. Run stator leads through current transformers supplied in kit and reconnect stator leads. Use generator reconnection illustration as required in the generator set operation manual for additional information.

9. Mount single phase load share module (ILS) inside the junction box with four screws. See Figure 1 or Figure 2 for location, hole size, and spacing.
10. Install electronic governor kit and reactive droop compensator kit, and shunt-trip circuit breaker if not already installed.
11. Route wiring harness controller leads up through junction box into controller. Use wiring diagram manual to connect harness leads inside controller. Use cable ties where necessary to secure leads.
12. Connect harness leads inside junction box. See Figure 1 and wiring diagram.
13. Connect affected engine leads to the wiring harness. See wiring diagram.
14. Secure harness inside junction box with clamps and screws as shown in Figure 1 or Figure 2.
15. Replace junction box panels and top of controller.
16. Reconnect generator set to load by closing line circuit breaker or reconnecting output leads to transfer switch. Reconnect engine starting battery, negative (–) lead last.
17. Repeat steps 1-16 for the second generator set if not already done.
18. Connect the two generator set output leads together using the corresponding wiring diagram in the wiring diagram manual. See Figure 3 for paralleling controller system configuration.
19. Reconnect power to battery charger and reconnect battery cables, negative (–) lead last.
20. Refer to the appropriate operation procedure in the manual paralleling operation manual.

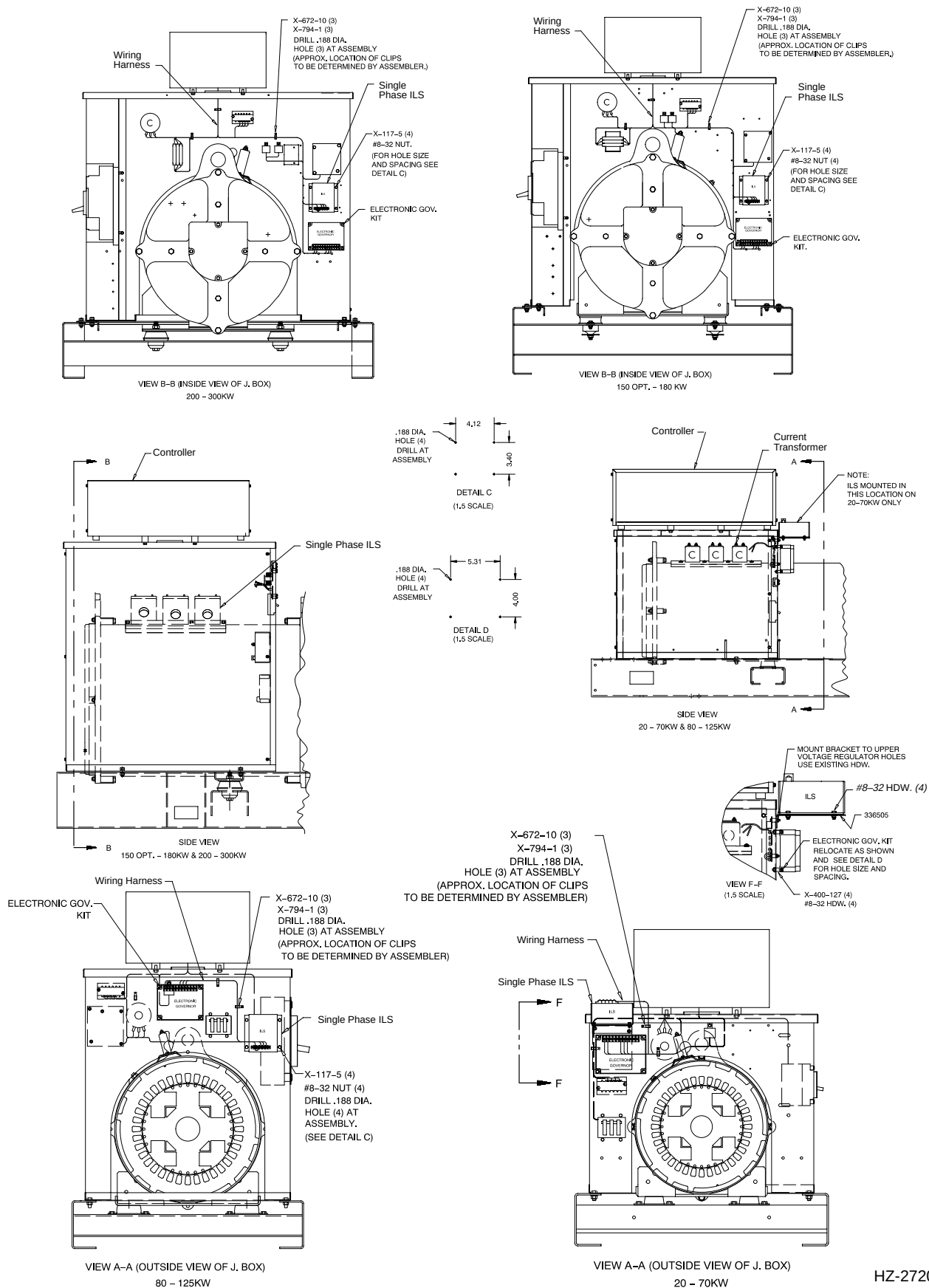
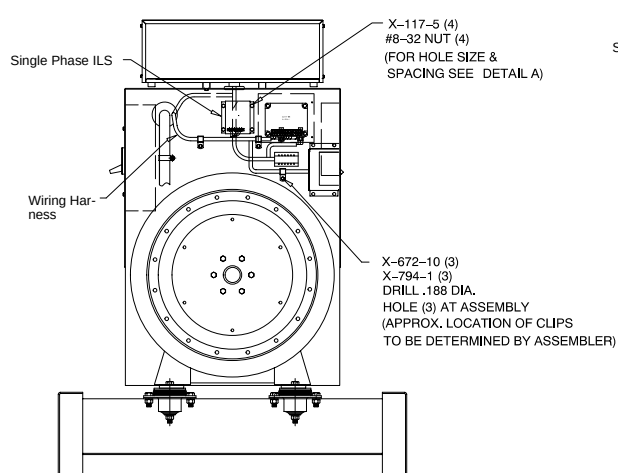
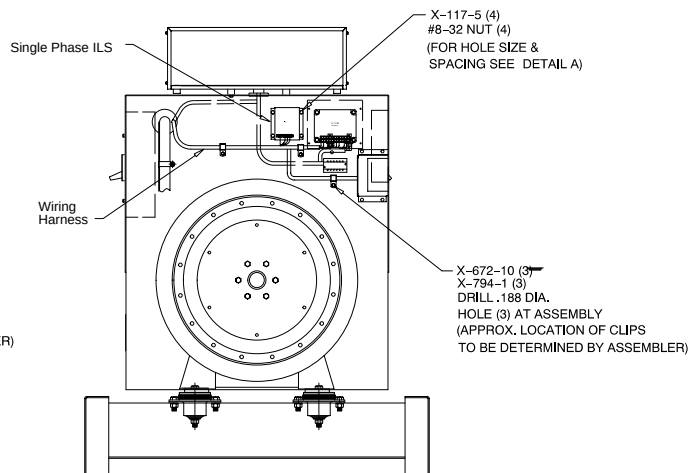


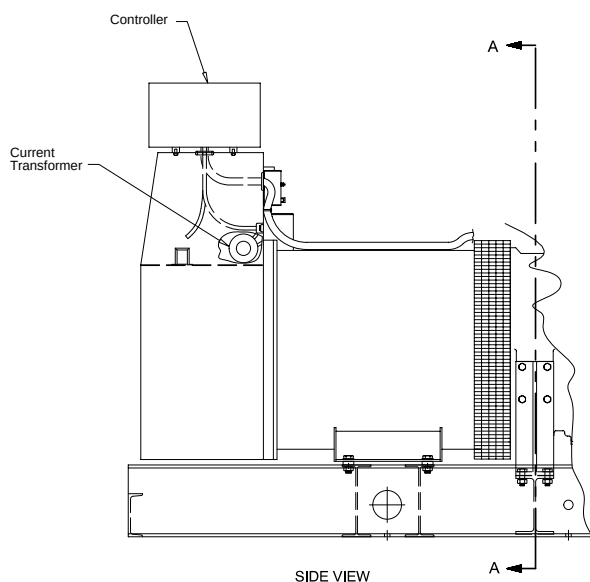
Figure 1. Junction Box Layout 20-300 kW



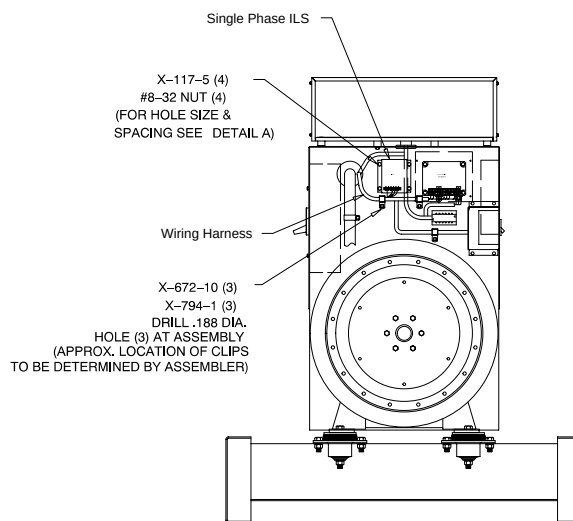
VIEW A-A (OUTSIDE VIEW OF J. BOX)
(450 – 800KW)



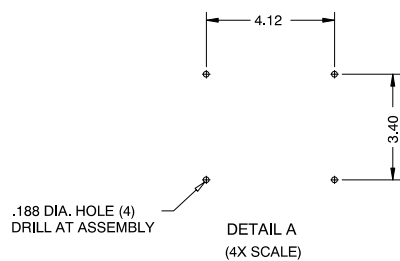
VIEW A-A (OUTSIDE VIEW OF J. BOX)
(900 – 1600KW)



SIDE VIEW

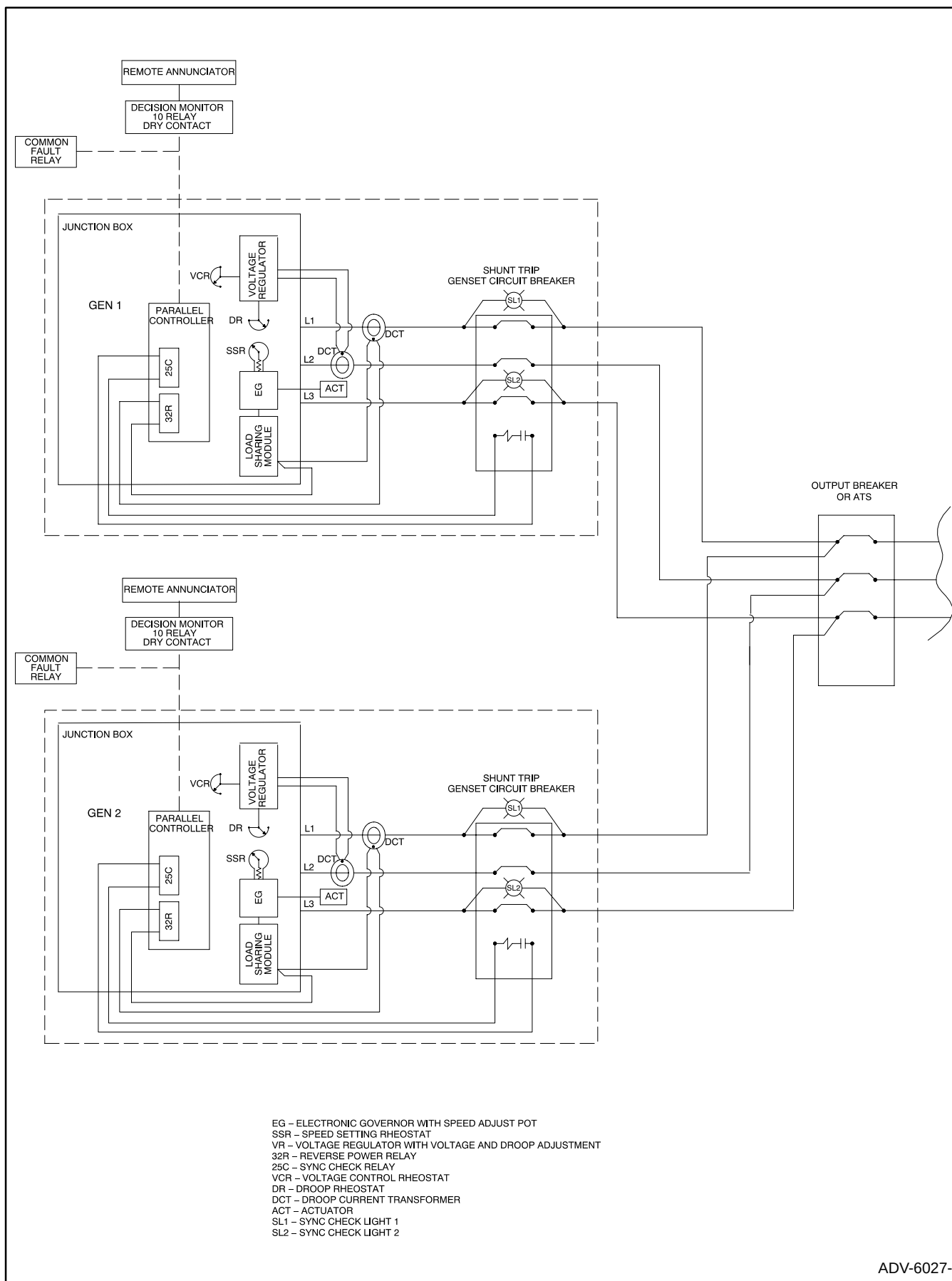


VIEW A-A (OUTSIDE VIEW OF J. BOX)
(350 – 400KW)



JA-272000

Figure 2. Junction Box Layout 350-2000 kW



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Figure 3. Paralleling Controller System Configuration