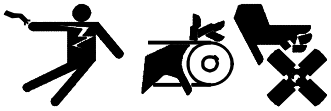
INSTALLATION INSTRUCTIONS

Original Issue Date: **9/98**
Model: **20-2000 kW with Microprocessor Controller**
Market: **Industrial**
Subject: **Decision-Maker® 340 Controller Retrofit Kit PA-354267**

Use the following procedure to replace a microprocessor controller with a Decision-Maker® 340 controller. For identification of the Decision-Maker® 340 controller features and operation, see the Operation Manual included in the literature kit.

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 parts.
Can cause severe injury or death.

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

Grounding electrical equipment. Hazardous voltage can cause severe injury or death. Electrocution is possible whenever electricity is present. Ensure you comply with all applicable codes and standards. Electrically ground the generator set, transfer switch, and related equipment and electrical circuits. Turn off the main circuit breakers of all power sources before servicing the equipment. Never contact electrical leads or appliances when standing in water or on wet ground because these conditions increase the risk of electrocution.

Connecting the battery and the battery charger. Hazardous voltage can cause severe injury or death. Reconnect the battery correctly, positive to positive and negative to negative, to avoid electrical shock and damage to the battery charger and battery(ies). Have a qualified electrician install the battery(ies).

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 all jewelry before servicing the equipment.

Note: The following retrofit kit procedure changes only the controller. If the generator requires voltage reconnection and/or frequency adjustment, see TP-5829, Section 5—Generator Reconnection for procedure.

Note: The trickle charger is not suitable for generator sets equipped with the Decision-Maker® 340 controller because of the controller's current draw requirements. Use the float/equalize battery charger for generator sets equipped with the Decision-Maker® 340 controller.

Installation

1. Remove the generator set from service.

1.1 Place the generator set master switch in the OFF position.

1.2 Disconnect power to battery charger, if equipped.

1.3 Disconnect the generator set engine starting battery(ies), negative (-) lead first.

2. Remove the existing controller.

2.1 Remove the microprocessor controller cover.

Note: Clearly mark all disconnected leads from the microprocessor controller with tape to simplify reconnection in the Decision-Maker® 340 controller.

2.2 Disconnect controller harness leads inside the microprocessor controller. Listed below are some common leads and plugs that require removal or disconnection. These connections are typical and may not apply to all situations. There may be more leads or plugs requiring removal or disconnection than are listed. See corresponding wiring diagrams found in the Wiring Diagram Manual.

- AC fuse terminal block leads V7, V8, and V9
- All external connections made to terminal strips TB1 and TB2
- Any other external leads to the controller
- Choke board lead 70 (30–45 kW gas-fueled models)
- CT/meter scale terminal block lead V0
- Current transformer leads C0, C1, C2, and C3
- Digital voltage regulator remote adjustment leads 21, 22, and 23 from TB1 on 350-2000 kW units
- Lead 5 from the back of the water temperature gauge
- Lead 7C from the back of the oil pressure gauge
- Plug P1
- Plug P2
- Voltage adjustment leads (P13), if equipped
- Prime power kit, if equipped

2.3 Record the range of the oil pressure gauge on the microprocessor controller, either 0–100 psi 0–150 psi, or 0–200 psi.

2.4 Record the range of the water temperature gauge on the microprocessor controller, either 100°F–250°F or 100°F–280°F.

3. Install the controller retrofit kit.

3.1 Unbolt and remove the microprocessor controller.

3.2 Remove the Decision-Maker® 340 controller cover and bolt the controller to the top of the junction box using hardware removed in step 3.1.

3.3 Replace controller front display lamps, if required. The factory ships the Decision-Maker® 340 controller with 12-volt lamps. Replace the bulbs in the controller with the bulbs provided in the retrofit kit if the engine electrical system is 24 volts. See Figure 1 for lamp identification.

Part No.	Volts	Lamp Part No.
255126	12	1892
283420	24	313

Figure 1 Lamp Identification

3.4 Reconnect controller harness leads that were previously disconnected. See Wiring Diagram Manual (TP-5851) included in the literature kit.

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

Note: **350–2000 kW with DVR voltage regulator only:** Connect DVR voltage regulator if required. See Operation Manual TP-5829, Section 6 Accessories, Voltage Regulator for more information. Wire DVR voltage regulator using wiring diagram shown in Section 6 and/or wiring diagram 354246 in Wiring Diagram Manual (TP-5851).

3.5 Reinstall Decision-Maker® 340 controller cover.

4. Restore the generator set to service.

4.1 Check that the generator set master switch is in the OFF position.

4.2 Reconnect generator set engine starting battery(ies), negative (-) lead last.

4.3 Reconnect power to battery charger, if equipped.

5. Initial setup of the new controller.

5.1 Go to Menu 20—Final Assembly and arrow down to Version No. 2.25. See Figure 2. Arrow right to initialize EEPROM. Press the Enter button and the display shows Store Set-Points (this is a soft reboot of the logic board).

5.2 Go to Menu 11—Programming Mode and access Program Mode—Local. See TP-5829 Section 2—Operation, Menu 11—Local Programming Mode On for procedure.

5.3 Go to Menu 6—Generator System and update the factory-preset generator set voltage and kW rating frequency data. See TP-5829 Section 2—Operation, Menu 6—Generator System (Local Programming Mode On) for procedure.

5.4 Go to Menu 9—Calibration and perform the calibration procedure. See TP-5829 Section 2—Operation, Menu 9—Calibration (Local Programming Mode On) for procedure.

5.5 Store the set points.

6. Setup with the generator set running.

6.1 Move the generator set master switch to the RUN position to start generator set.

Note: If the generator set shuts down from overvoltage check voltage calibration. Reset and restart generator set after an overvoltage shutdown, then go into menu 9. While in menu 9 overvoltage shutdown is disabled.

6.2 Go to Menu 1—Generator Output and verify metering.

6.3 Go to Menu 3—Time & Date to set time and date.

Note: Kohler recommends input of Menu 20 system information, model number, spec number, serial number, etc.; however, complete system information is not required for controller retrofit. Input of complete Menu 20 system information, model and spec. number, requires using the optional Kohler Monitor software.

6.4 Move the generator set master switch to the OFF/RESET position to stop generator set.

7. Setup using Menu 20—Final Assembly.

7.1 Go to Menu 20—Final Assembly.

7.2 Arrow down to Setup Lock. See Figure 2.

7.3 If the Setup Lock display is not visible, go to step 7.4 If the Setup Lock displays NO, go to step 7.8

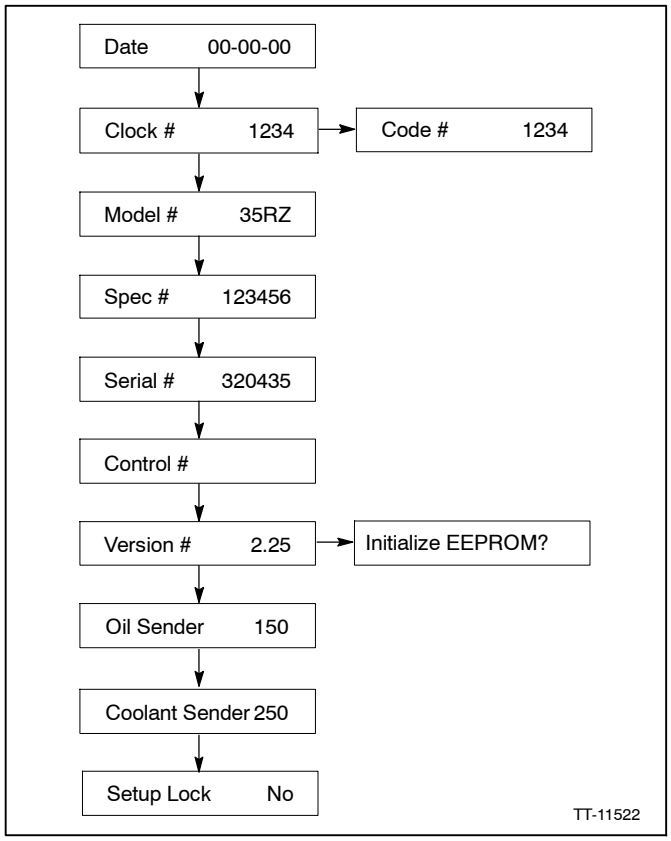


Figure 2 Menu 20—Final Assembly

7.4 Arrow down to Clock #.

7.5 Note the clock # for future reference.

7.6 Arrow right from Clock #.

7.7 Input the clock # from step d and press ENTER to accept the entry and unlock the Setup Lock.

7.8 Arrow back to Date. See Figure 2.

7.9 Enter the date on which the generator set is put into service and press ENTER.

7.10 Arrow down to oil sender menu. Menu value must match the maximum oil pressure gauge value recorded in step 2.3. If value displayed is incorrect select correct value using keypad.

7.11 Arrow down to the coolant (water temperature) sender menu. The menu value must match the coolant gauge value recorded in step 2.4. If the value displayed is incorrect select 255240 for 100°F–250°F or 226717 for 195°F–280°F using the keypad.

Note: The controller logic defaults to the 0–150 psi (0–1034 kPa) range on all 1200 kW and larger generator sets. Some generator sets 1200 kW and larger may have a 0–100 psi (0–690 kPa) oil pressure gauge and sender. Use Menu 20 to match the oil pressure sender to the controller logic.

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the
US and Canada, phone 1-800-544-2444
KOHLERPower.com

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

7.12 Input other required information in Menu 20. The Local Programming mode allows input of only numeric values. To input both the numeric and alpha characters, use a PC and the remote monitoring software. See Section—7 Factory Setup Option of the Software Manual (TP-5823) for more information.

7.13 Arrow down to Setup Lock and press YES.

8. Make final voltage adjustments.

8.1 Move the generator set master switch to the RUN position to start generator set.

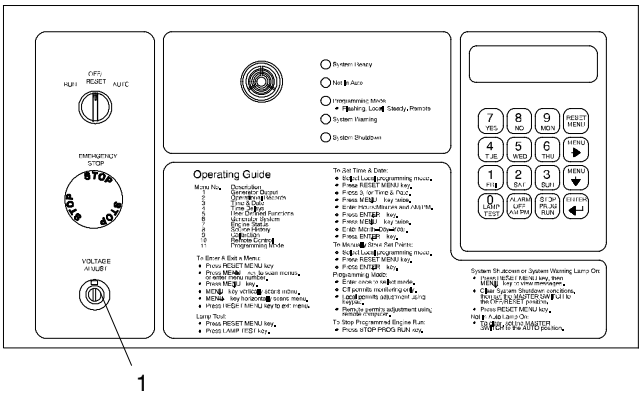
8.2 Check voltage display. See Section 2—Operation Menu 1—Generator Output for access to voltage data.

20–300 kW Models: Adjust voltage if necessary with the voltage adjustment potentiometer on the generator controller front panel or switchgear. Potentiometer knob incorporates a lockable setting provision. See Figure 3.

350–2000 kW Models: Adjust voltage if necessary with the voltage adjustment potentiometer on the digital controller, voltage regulator, or switchgear. Use the optional controller display/menu feature, if equipped, found in Menu 1—Generator Output for voltage regulator adjustment. Otherwise, use the technical manual for voltage regulator adjustment.

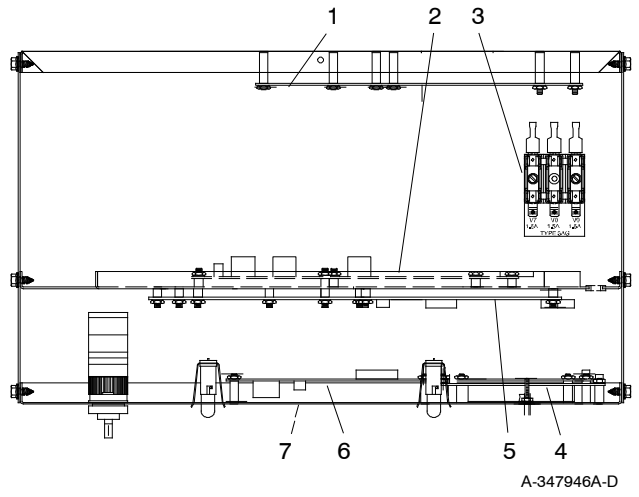
8.3 Move the generator set master switch to the OFF/RESET position to stop generator set.

8.4 Setup of the new controller is now complete.



1. Voltage adjustment potentiometer

Figure 3 Voltage Adjustment



1. Interconnection circuit board (TB1, TB2, TB3, and TB4 terminal strips)
2. Input conditioning circuit board
3. AC fuse block
4. Keypad and digital display circuit boards
5. Main logic (microprocessor) circuit board with F1, F2, and F3 fuses
6. Indicator circuit board (LED and alarm horn)
7. Optional communication circuit board (below indicator board)

Figure 4 Controller Circuit Boards and Fuses (controller top view)

Decision-Maker® 340 Controller Retrofit Kit

Parts List		
Kit: PA-354267		
Qty.	**Description**	**Part Number**
1	Assembly, controller	A-347946
2	Lamp (24-volt)	283420
1	Kit, literature	350162

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® generator set distributor for availability.