INSTALLATION INSTRUCTIONS

Original Issue Date: **5/04**
Model: **4–40 kW Generator Sets Equipped with the ADC 2100 Controller**
Market: **Marine, Mobile, and Residential/Commercial**
Subject: **ADC 2100 Controller Replacement Kits GM34969, GM46826, and GM48301**

Introduction

Use these instructions to replace, configure, and adjust the controller on generator sets originally equipped with the ADC 2100 controller. See Figure 1 for ADC 2100 Controller identification. Controller replacement, configuration, and adjustment must be performed by an authorized distributor/dealer or trained service technician.

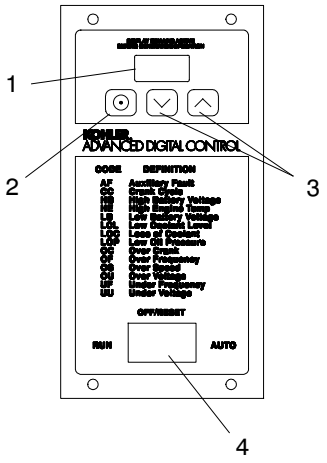
Check the controller settings before replacing the controller. Incorrect controller settings can cause the generator set to shut down or operate incorrectly. Follow the instructions in this document to verify that the controller settings are correct for the generator set and optional accessories before removing the controller.

Always check for loose connections, faulty wiring, blown fuses, a dead battery, or other simple problems before replacing parts. Check the SCR module (GM28483) connections, F1 fuse, and wiring before replacing the controller. Refer to the generator set service manual for troubleshooting and repair procedures.

Note: The installer must set up the replacement controller after installation. Be sure to read and follow the entire procedure to configure and adjust the new controller.

See Figure 2 for ADC 2100 controller replacement kit numbers.

Read the entire installation procedure before beginning installation. Perform the steps in the order shown.



1. LED display
2. Select button (use for setup and adjustment only)
3. Up and down arrow buttons (use for setup and adjustment only)
4. Generator set master switch

Figure 1 ADC 2100 Controller

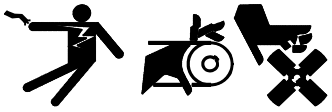
Generator Set Model	Controller Part Number (for reference only)	Kit Number
5/7.3ECD and 4/6EFCD	GM47982	GM48031
10–15EGD, 9/11EFGD, and 13–15EGZD		
20EORZD/EORZDB spec numbers GM38880-SA1 and GM38880-SA2 (See “All other models” below for other spec numbers)	GM42037	GM46826
28/32EOZD and 23/25/27/28EFOZD spec numbers GM55347-GA1 to -GA16 (See “All other models” below for other spec numbers)		
All other models	GM28707	GM34969

Figure 2 ADC 2100 Replacement Kit Numbers

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 parts.
Can cause severe injury or death.

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

Servicing the generator set when it is operating. Exposed moving parts can cause severe injury or death. Keep hands, feet, hair, clothing, and test leads away from the belts and pulleys when the generator set is running. Replace guards, screens, and covers before operating the generator set.

Before Replacing the Controller

Read the information in this section before starting the controller replacement procedure.

Controller Application Program

The controller's application program version number is shown on a label on the controller circuit board (under the back cover). The program version number is also displayed on the LED screen during the key sequence to enter the configuration mode. (The controller must be connected to the generator set.) Hold the Select button and move the generator set master switch to the RUN position. After about 5 seconds, the application program version number will be displayed on the controller display. For example, 01.18 will be displayed for program version 1.18.

Notes:

- The ADC 2100 application program does not apply to the APU, ADC-RES, DC-RET, ADC II, ADC IId, RDC, DC, DC2, or RDC2 controllers.
- Use controller application code version 1.18 or later on controllers that are not equipped with the P7 jumper. Do not load earlier code versions on controllers that do not have the P7 jumper.
- ADC application program version 3.10 or later can be used on all generator sets equipped with the ADC 2100 controller. If you have a controller with an earlier version of code, upgrading to version 3.10 or higher is recommended.
- Use controller application code version 3.20 or later for all generator models using remote digital gauge GM50577 and gauge kit GM50822.

See Tech Tools for a summary of all code version information/history. The most current code version, at the time of this printing, is version 3.32. Upgrading to the latest version is highly recommended.

Go to Tech Tools, Software, to find the latest software information and obtain application program software.

Use the Program Loader Software and a personal computer to update the controller's application program after controller installation, when necessary. Obtain the latest version of the application program and the Program Loader software through Tech Tools or contact your generator set distributor. Refer to TT-1285, Program Loader Instructions, for instructions to load the application program onto the controller.

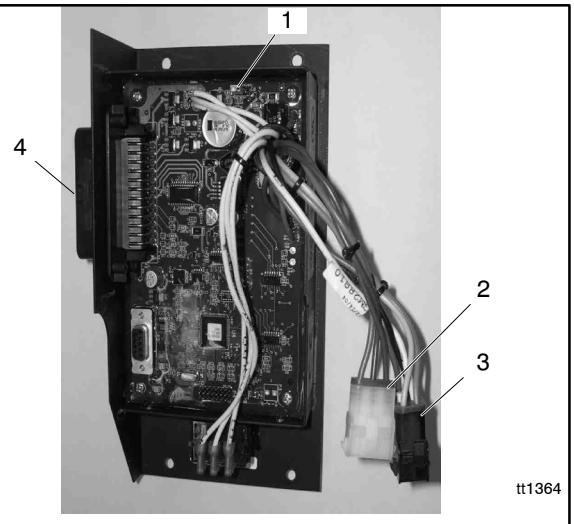
Continuous Power Mode Jumper P7 Eliminated

Controllers manufactured after 7/18/2005 (with serial number 2051415 and later) no longer include the continuous power mode jumper P7. See Figure 3. These controllers use application program version numbers 1.18 and above.

Note: Do not load ADC application program versions numbered below 1.18 onto the upgraded (P7 jumper eliminated) ADC 2100.

See Service Bulletin SB-652 for more information about the elimination of the continuous power mode jumper.

Note: See power down times in Figure 9.



1. P7 jumper, if equipped
2. J15 connector
3. J16 connector
4. P1 connection

Figure 3 P7 Jumper Location, if equipped (controller back cover removed)

Controller Replacement

1. Before replacing the controller, record the following information about the generator set. This information is required for configuration of the new controller.

Model		
Market	❑ Marine ❑ Standby (Residential/Comm) ❑ Mobile	
Voltage, VAC		
Frequency	❑ 60 Hz	❑ 50 Hz
Phases	❑ 1 Ph	❑ 3 Ph
Battery Voltage	❑ 12 VDC	❑ 24 VDC
Optional sender kits installed	❑ None ❑ Oil pressure sender kit GM32112-KA1 or -KP1 ❑ OP and WT senders GM45891-KA1 ❑ Oil pressure sender kit GM50552-KA1	
Remote gauges connected	❑ None ❑ Remote Digital Gauge GM32337-KP1 or -KP2 ❑ 3" Smartcraft gauge GM46035-KP1 ❑ 2" Smartcraft gauge GM50822-KP1	

Figure 4 Generator Set Information Required for Controller Setup

2. Place the generator set master switch in the OFF position.
3. Disconnect the power to the battery charger, if equipped.
4. Disconnect the generator set engine starting battery(ies), negative (-) lead first.
5. Open the junction box to gain access to the back of the ADC 2100. Disconnect the controller at P1, J15, and J16. See Figure 3.
6. Models ECD/EFCD, EGD/EFGD, and EGZD only: Disconnect the CO sensor harness at the 4-pin connector.
7. Remove four controller mounting screws and remove the old controller.

8. Models ECD/EFCD, EGD/EFGD, and EGZD only:

   a. Remove the CO sensor module assembly from the old controller or obtain a new CO sensor module assembly GM46362.

   b. Mount the assembly onto the 4 mounting studs on the back of the new controller GM47982.

9. Install the new controller and secure it with the mounting screws.

10. Reconnect the P1, J15, and J16 connectors. On models ECD/EFCD, EGD/EFGD, and EGZD, connect the CO sensor harness to the 4-pin connector. Close the junction box.

11. **This step applies to models 10/13/15EG, 10/13/15ERG, 15/30RES, and 15/30RYG only. For all other models, proceed to step 12.**

    a. Check the generator set serial number and refer to Figure 5. On these generator set models **with serial numbers before 2053692,** it is necessary to cut the gray/orange lead in the wiring harness when an ADC 2100 controller with application code version 1.18 or later is installed.

    Generator sets with higher serial numbers use different wiring harnesses and do not require this procedure. **Proceed to step 12 for units with serial numbers above 2053692.**

    b. Remove the cover on the ECM connector.

    c. Locate pin #9. See the X mark in Figure 6.

    d. Cut and remove a 1-in. section of the gray/orange lead entering pin #9 in the wiring harness at the ECM connector. This allows the ADC 2100 (and not the ECM) to control the starting circuit.

    e. Replace the cover on the ECM connector.

Model	Market	Before Serial Number
10EG 13EG 15EG	Marine	**2053692**
10ERG 13ERG 15ERG	Commercial/ Recreational Mobile	
15RES 30RES 15RYG 30RYG	Residential/ Commercial	

Figure 5 Models Requiring Starting Circuit Procedure (for application code version 1.18 or higher)

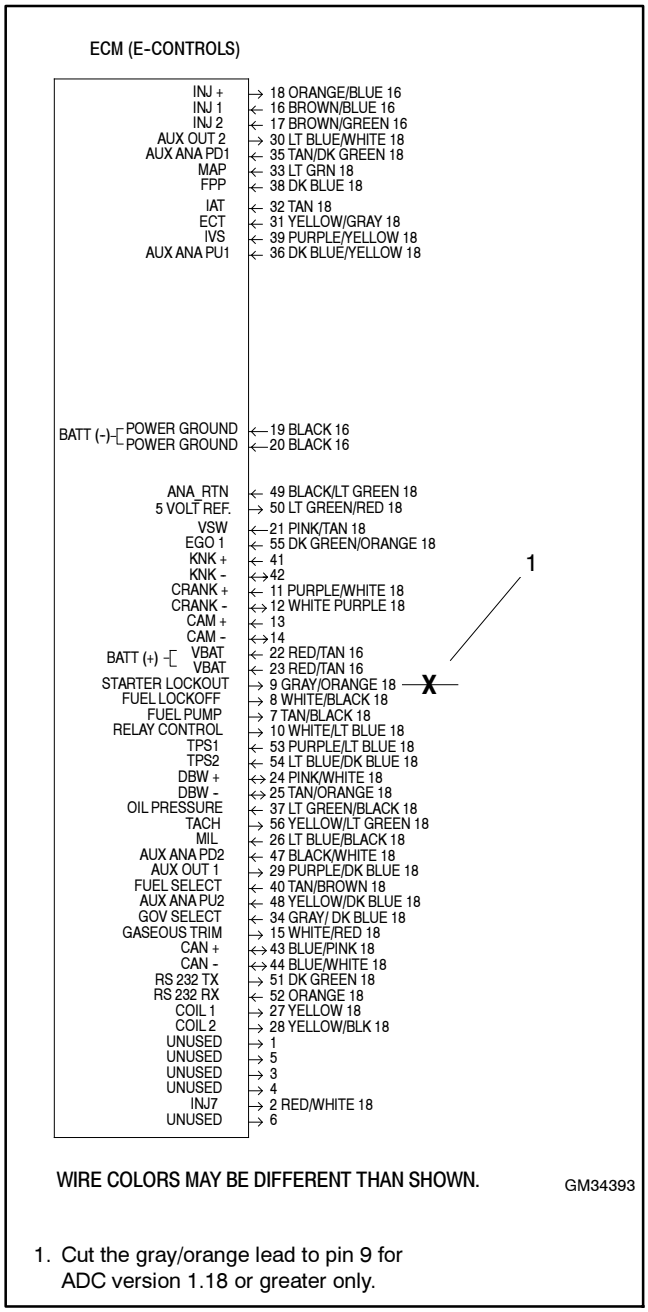


Figure 6 ECM Wiring for 10/13/15EG, 10/13/15ERG, 15/30RES, and 15/30RYG Models, S/N before 2053692

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

13. Reconnect the generator set engine starting battery, negative (-) lead last.

14. Reconnect power to the battery charger, if equipped.

15. Check the controller application software version number:

    a. Hold the Select button and move the generator set master switch to the RUN position. After about 5 seconds, the application software version number will be displayed on the controller display.

    b. Compare the software version number to Tech Tools. Use Kohler's Program Loader to load the latest version of the application code onto the controller. Go to Tech Tools, Software, or refer to TT-1285 for instructions to obtain and load the latest version of the controller application code, if necessary.

16. Follow instructions in the Controller Configuration Section to change the new controller's configuration settings to match the generator set system voltage and frequency, unit configuration, engine type, engine data input types, battery voltage, and communications settings.

    Note: Be sure to save the new settings immediately as instructed before exiting the configuration mode. The changes will be lost if the controller times out before the settings are saved.

17. Use a multimeter to check the output voltage and frequency. Follow the instructions in the Voltage and Speed Adjustment Section to adjust the output voltage, speed, and stability settings on the ADC controller. Save the settings immediately after adjustment is complete.

    Note: Models with mechanical governors do not use the ADC controller's engine speed adjustment menus.

Controller Configuration

Replacement controllers are factory-set for the 8.5/12RES generator set. The installer must set the replacement controller to the appropriate configuration for the generator set model. See Figure 12 through Figure 15 to determine the appropriate settings for your generator set model. Settings are also summarized in Appendix A.

After you have identified the appropriate settings for your generator set, follow the instructions in Figure 16 through Figure 18 to change the controller settings. Enter the configuration mode while the engine is not running and then step through the parameters. Use the up (∧) and down (∨) arrow buttons to select the appropriate setting for each parameter.

Optional Sender Kits and Ed Setting

The installation of optional sender kits may require a change to the Ed (engine data inputs) setting. See Figure 7 for the Ed settings with optional sender kits. "No Change" means the installation of the kit does not require a change to the Ed setting.

Note: The Ec setting can affect the Ed setting. If you change the Ec setting, check the Ed setting and change it if necessary to match the value shown in the tables for your unit.

Note: Installation of an optional electronic governor kit with a magnetic pickup does not require a change to the Ed setting.

Model	Sender Kit	Ed
5/7.3ECD 4/6EFCD	None	0
	GM45891-KA1 *	No Change
6EOD 4.5EFOD	None	1
	GM32112-KA1 and -KP1 †	3
	GM50552-KA1 *	No Change
	GM47164-KP1 ‡	No Change
8-32EOZD 6.5-28EFOZD	None	1
	GM32112-KA1 and -KP1 *	3
	GM50552-KA1 †	No Change
10/13/15EG 9/11EFG 13/15EGZ	None	1
	GM35299-KA1 and -KP1 *	3
10/13/15EGD 9/11EFGD 13/15EGZD	None	3
10-20EORD/B 10-20EORZD/B 9-16.5EFORD/B 9-16.5EFORZD/B	GM46308-KP1 ‡	No Change

* OP and WT sender kits
† Oil pressure sender kits
‡ Electronic governor kit

Note: For other models, refer to the parameter setting tables.

Figure 7 Ed Settings with Optional Sender Kits

Cn Communication Parameter

See Figure 8 and Figure 9 for communication parameter settings. If your generator set is connected to a remote digital gauge, refer to Figure 8, Figure 9, and the instruction sheet provided with the gauge to determine the communication parameter Cn setting.

Gauge Kit	Gauge Description	Cn Setting	Description
None	—	Cn00	No CAN communication
GM32337-KP1	Remote Digital Gauge for Marine	Cn01	J1939 CAN communication
GM32337-KP2 §	Remote Digital Gauge for Mobile and Residential/ Commercial	Cn01	J1939 CAN communication, continuous power to ADC*
		Cn06	J1939 CAN communication, ADC power down after 1 hour for either:* a. Remote start/stop switch b. Automatic transfer switch c: Remote digital gauge GM32337-KP2 with remote start/stop switch and replacement harness
GM46035-KP1	Three-Inch Digital Gauge	Cn02	Smartcraft™ gauge for generator set #1 with ECM †
		Cn03	Smartcraft™ gauge for generator set #2 with ECM †
		Cn04	Smartcraft™ gauge for generator set #3 with ECM †
		Cn05	Smartcraft™ gauge for generator set #4 with ECM †
		Cn07	Smartcraft™ gauge for generator set #1 without ECM †
GM50822-KP1	Two-Inch Digital Gauge	Cn08	Smartcraft™ 2-inch gauge for generator set #1 with ECM ‡
		Cn09	Smartcraft™ 2-inch gauge for generator set #1 without ECM ‡

* For ADCs with removable power mode jumpers, refer to TT-1439 for power down information.
† Smartcraft™ settings for ADC code version 2.00 or higher only, for models 5/7.3ECD and 4/6EFCD.
‡ Smartcraft™ settings for ADC code version 2.20 or higher only.
§ ADC code version 3.12 or higher is recommended with this gauge kit.

Figure 8 Communication Parameter Cn Settings (optional gauges are available on selected models only)

Power Modes

With the generator set master switch in the AUTO position, there are three possible controller power modes:

- **48-hour power down.** If the communication parameter setting is Cn00, Cn02, Cn03, Cn04, Cn05, or Cn07, the controller will power down after 48 hours of inactivity. If the generator set has been started, the controller will power down 48 hours after the generator set stops.
- **Continuous power mode.** If the ADC 2100 communications parameter is set to Cn01, the controller will not power down. The controller remains powered at all times to maintain CAN communications and allow remote start commands from the CAN gauge. A battery charger is recommended to maintain the battery.
- **1-hour power down.** Setting the communications parameter to Cn06, Cn08, or Cn09 will cause the ADC 2100 to power down after 1 hour of inactivity. In this mode, a remote start/stop switch or the generator set master switch must be used to activate the controller after it has powered down. ADC 2100 application code version 1.21 or higher is required for the 1-hour power down option.

  Note: After controller power-down, a remote digital gauge will not have power and therefore will not be able to send a start signal to activate the controller.

  Note: Use of the 2-inch digital gauge allows wake-up of the controller remotely.

  Note: Figure 9 describes the power down time for various CAN settings. This only applies when the master switch is in the AUTO position.

CAN Setting	Power Down Time	Application Notes
Cn00	48 Hours	No remote gauge used, remote start/stop via switch only
Cn01 *	Never/None	3-inch J1939 gauge with no sleep mode
Cn02 †	48 Hours	3-inch Smartcraft™ gauge with SECM engine (Ec04)
Cn03 †	48 Hours	3-inch Smartcraft™ gauge with SECM engine (Ec04)
Cn04 †	48 Hours	3-inch Smartcraft™ gauge with SECM engine (Ec04)
Cn05 †	48 Hours	3-inch Smartcraft™ gauge with SECM engine (Ec04)
Cn06 *	1 Hour	3-inch J1939 gauge with one hour sleep mode
Cn07 †	48 Hours	3-inch Smartcraft™ gauge with non-SECM engine (not Ec04)
Cn08 ‡	1 Hour §	2-inch Smartcraft™ gauge with SECM engine (Ec04)
Cn09 ‡	1 Hour §	2-inch Smartcraft™ gauge with non-SECM engine (not Ec04)

* For use with gauge GM30565 and gauge kit GM32337.
† For use with gauge GM45905 and gauge kit GM46035.
‡ For use with gauge GM50577 and gauge kit GM50822.
§ Before version 3.20, the power down time is 48 hours.

Figure 9 Power Down Times for CAN settings

Uc Market Parameter

The Uc settings are listed in Figure 10 and also shown in the parameter tables for each model.

Uc Setting	Description
Uc00	Marine
Uc01	Standby (Residential/Commercial)
Uc02	Mobile

Figure 10 Uc Market Parameter

CO Parameter

The CO parameter does not appear for all models. N/A (not applicable) is shown in the table if the CO setting does not apply.

For some models, CO must be set to 0 (zero) or 1 as shown in the tables. An incorrect setting may cause the generator set to shut down on a fault and display the fault code CO-3 or CO-6.

CA Parameter

The CA parameter appears in the advanced configuration mode only when the engine configuration is set to Ec02, Ec11, or Ec12 and the communication parameter is set to Cn01. CA sets the CANbus address for the controller as shown in Figure 11. The default setting is CA00.

The CA parameter appears only in application code versions 3.12 or higher.

CA Setting	CANbus Address
CA00 *	0x00 *
CA01 †	0xEA †
* Default setting † SAE J1939 compliant	

Figure 11 CA CANbus Address Parameter

Configuration Mode Time Out

The controller will automatically exit the configuration mode without saving any changes after about 1 minute if no buttons are pressed. Start the configuration procedure over again from the beginning if the controller exits the configuration mode before the settings have been saved.

Voltage and Speed Adjustment

After setting the system configuration, use a multimeter to check the generator set output voltage and frequency. Use the controller to adjust the output if the voltage and/or frequency are not within the acceptable range for the application.

The diagrams in Figure 19 and Figure 20 outline the procedures for voltage and speed adjustments. The generator set must be running during these adjustments. Use a multimeter to measure the generator set output voltage and frequency during adjustments.

The engine speed (frequency) adjustment menus are not accessible on models with mechanical governors.

Note: Save your settings after making adjustments. If the settings are not saved, the system returns to the previous settings after the generator set shuts down.

Controller Parameter Settings, Marine Models

Marine Gasoline Model		Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	CO	Battery Voltage	CANbus Comm.
				Uu*	Uc	Ec	Ed†	CO	Bt	Cn‡
ECD EFCD	4EFCD	50	230 V, 1 Ph, 2 W	2	0	4	0	1	12	2, 3, 4, 5, or 8 ‡
			115/230 V, 1 Ph, 3 W	6						
			115 V, 1 Ph, 2 W	5						
	5ECD	60	120/240 V, 1 Ph, 3 W	1						
			120 V, 1 Ph, 3 W	0						
			120 V, 1 Ph, 2 W	0						
	6EFCD	50	230 V, 1 Ph, 2 W	2						
			115/230 V, 1 Ph, 3 W	6						
			115 V, 1 Ph, 2 W	5						
	7.3ECD	60	120/240 V, 1 Ph, 3 W	1						
			120 V, 1 Ph, 3 W	0						
			120 V, 1 Ph, 2 W	0						
EG EFG	9EFG	50	230 V, 1 Ph, 2 W	2	0	3	1 (std.) or 3 (ops) †	0	12	0, 1, or 6 ‡
	10EG	60	120/240 V, 1 Ph, 3 W	1						
			120 V, 1 Ph, 2 W	0						
	11EFG	50	230 V, 1 Ph, 2 W	2						
	13EG	60	120/240 V, 1 Ph, 3 W	1						
	15EG	60	120/240 V, 1 Ph, 3 W	1						
EGZ	13EGZ	60	120/240 V, 1 Ph, 3 W	1	0	10	1 (std.) or 3 (ops) †	0	12	0, 1, or 6 ‡
	15EGZ	60	120/240 V, 1 Ph, 3 W	1						0, 1, 6, 7, or 9 ‡
EGD EFGD	9EFGD	50	230 V, 1 Ph, 2 W	2	0	3	3	1	12	0, 1, 6, 7, or 9 ‡
	10EGD	60	120/240 V, 1 Ph, 3 W	1						
			120 V, 1 Ph, 2 W	0						
	11EFGD	50	230 V, 1 Ph, 2 W	2						
	13EGD	60	120/240 V, 1 Ph, 3 W	1						
	15EGD	60	120/240 V, 1 Ph, 3 W	1						
EGZD	13EGZD	60	120/240 V, 1 Ph, 3 W	1	0	10	3	1	12	
	15EGZD	60	120/240 V, 1 Ph, 3 W	1						

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Replacement controllers from Kohler Aftermarket Parts are shipped with factory settings for the 8.5/12RES.
Note: Setting the Ec parameter automatically selects the Ed parameter for the standard data inputs for that engine. If you change Ec, check the Ed setting.
Note: 13/15EGZ models with PTO require application program version 1.21 or higher.
Note: 10/13/15EGD and 13/15EGZD models with PTO require application version 3.00 or higher.

Figure 12 Controller Parameter Settings, Marine Gasoline Models

Marine Diesel Model		Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	Battery Voltage	CANbus Comm.
				Uu*	Uc	Ec	Ed†	Bt	Cn‡
EOD EFOD	4.5EFOD	50	230 V, 1 Ph, 2 W	2	0	1	1 (std.) or 3 (ops) †	12	0, 1, 6, 7, or 9 ‡
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	6EOD	60	120/240 V, 1 Ph, 3 W	1	0	1			
			120 V, 1 Ph, 3 W	0					
			120 V, 1 Ph, 2 W	0					
EOZD EFOZD	6.5EFOZD	50	230 V, 1 Ph, 2 W	2	0	1	1 (std.) or 3 (ops) †	12	0, 1, or 6 ‡
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	7EFOZD	50	230 V, 1 Ph, 2 W	2	0	1			0, 1, 6, 7, or 9 ‡
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	8EOZD	60	120/240 V, 1 Ph, 3 W	1	0	1			0, 1, or 6 ‡
			120 V, 1 Ph, 3 W	0					
			120 V, 1 Ph, 2 W	0					
	8.5EFOZD (3 Ph)	50	230/400 V, 3 Ph, 4 W, Wye	3	0	2	1 (std.) or 3 (ops) †	12 or 24	0, 1, 6, 7, or 9 ‡
	9EFOZD (1 Ph)	50	230 V, 1 Ph, 2 W	2	0	2			
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	9EOZD	60	120/240 V, 1 Ph, 3 W	1	0	1	1 (std.) or 3 (ops) †	12	
			120 V, 1 Ph, 3 W	0					
			120 V, 1 Ph, 2 W	0					
	10EOZD (1 Ph)	60	120/240 V, 1 Ph, 3 W	1	0	2	1 (std.) or 3 (ops) †	12 or 24	
			120 V, 1 Ph, 3 W	0					
			120 V, 1 Ph, 2 W	0					
	10EOZD (3 Ph)	60	120/240 V, 3 Ph, 4 W, Delta	10	0	2			
			127/220 V, 3 Ph, 4 W, Wye	16					
			220/380 V, 3 Ph, 4 W, Wye	19					
			240/416 V, 3 Ph, 4 W, Wye	20					
	11EFOZD	50	230 V, 1 Ph, 2 W	2	0	2			
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	11.5EFOZD (3 Ph)	50	115/230 V, 1 Ph, 3 W	6	0	2			
			115/230 V, 3 Ph, 4 W, Delta	14					
			110/190 V, 3 Ph, 4 W, Wye	17					
			120/208 V, 3 Ph, 4 W, Wye	18					
			220/380 V, 3 Ph, 4 W, Wye	21					
			230/400 V, 3 Ph, 4 W, Wye	3					
			240/416 V, 3 Ph, 4 W, Wye	22					
	13EOZD	60	120/240 V, 1 Ph, 3 W	1	0	2			
	13EFOZD	50	230 V, 1 Ph, 2 W	2	0	2			
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Replacement controllers from Kohler Aftermarket Parts are shipped with factory settings for the 8.5/12RES.

Note: Setting the Ec parameter automatically selects the Ed parameter for the standard data inputs for that engine. If you change Ec, check the Ed setting.

Marine Diesel Model		Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	Battery Voltage	CANbus Comm.
				Uu*	Uc	Ec	Ed†	Bt	Cn‡
EOZD EFOZD	14EOZD (3 Ph)	60	120/240 V, 1 Ph, 3 W	1	0	2	1 (std.) or 3 (ops) †	12 or 24	0, 1, 6, 7, or 9 ‡
			120/208 V, 3 Ph, 4 W, Wye	11					
			127/220 V, 3 Ph, 4 W, Wye	16					
			120/240 V, 3 Ph, 4 W, Delta	10					
			139/240 V, 3 Ph, 4 W, Wye	10					
			277/480 V, 3 Ph, 4 W, Wye	4					
	15EOZD	60	120/240 V, 1 Ph, 3 W	1					
	15.5EOZD	60	120/240 V, 1 Ph, 3 W	1					
	17EFOZD (1 Ph)	50	230 V, 1 Ph, 2 W	2					
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	17.5EFOZD (3 Ph)	50	115/230 V, 1 Ph, 3 W	6					
			115/230 V, 3 Ph, 4 W, Delta	14					
			110/190 V, 3 Ph, 4 W, Wye	17					
			120/208 V, 3 Ph, 4 W, Wye	18					
			220/380 V, 3 Ph, 4 W, Wye	21					
			230/400 V, 3 Ph, 4 W, Wye	3					
			240/416 V, 3 Ph, 4 W, Wye	22					
	20EOZD (1 Ph)	60	120/240 V, 1 Ph, 3 W	1					
	20EOZD (3 Ph)	60	120/240 V, 1 Ph, 3 W	1					
			120/208 V, 3 Ph, 4 W, Wye	11					
			127/220 V, 3 Ph, 4 W, Wye	16					
			120/240 V, 3 Ph, 4 W, Delta	10					
			139/240 V, 3 Ph, 4 W, Wye	10					
			277/480 V, 3 Ph, 4 W, Wye	4					
	20EFOZD	50	230 V, 1 Ph, 2 W	2	0	2 w.o. preheater or 9 w/ preheater	1 (std.) or 3 (ops) †	12 or 24	
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	20EFOZD (3 Ph)	50	115/230 V, 1 Ph, 3 W	6	0				
			115/230 V, 3 Ph, 4 W, Delta	14					
			110/190 V, 3 Ph, 4 W, Wye	17					
			120/208 V, 3 Ph, 4 W, Wye	18					
			220/380 V, 3 Ph, 4 W, Wye	21					
			230/400 V, 3 Ph, 4 W, Wye	3					
			240/416 V, 3 Ph, 4 W, Wye	22					
	23EOZD	60	120/240 V, 1 Ph, 3 W	1	0				
	24EOZD (3 Ph)	60	120/240 V, 1 Ph, 3 W	1	0				
			120/208 V, 3 Ph, 4 W, Wye	11					
			127/220 V, 3 Ph, 4 W, Wye	16					
			120/240 V, 3 Ph, 4 W, Delta	10					
			139/240 V, 3 Ph, 4 W, Wye	10					
			277/480 V, 3 Ph, 4 W, Wye	4					

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Replacement controllers from Kohler Aftermarket Parts are shipped with factory settings for the 8.5/12RES.
Note: Setting the Ec parameter automatically selects the Ed parameter for the standard data inputs for that engine. If you change Ec, check the Ed setting.

Marine Diesel Model		Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	Battery Voltage	CANbus Comm.
				Uu*	Uc	Ec	Ed†	Bt	Cn‡
EOZD EFOZD	23EFOZD (1 Ph)	50	230 V, 1 Ph, 2 W	2	0	7	1 (std.) or 3 (ops) †	12 or 24	0, 1, 6, 7, or 9 ‡
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	23EFOZD (3 Ph)	50	115/230 V, 1 Ph, 3 W	6					
			115/230 V, 3 Ph, 4 W, Delta	14					
			110/190 V, 3 Ph, 4 W, Wye	17					
			120/208 V, 3 Ph, 4 W, Wye	18					
			220/380 V, 3 Ph, 4 W, Wye	21					
			230/400 V, 3 Ph, 4 W, Wye	3					
			240/416 V, 3 Ph, 4 W, Wye	22					
	25EFOZD (1 Ph)	50	230 V, 1 Ph, 2 W	2					
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	25EFOZD (3 Ph)	50	115/230 V, 1 Ph, 3 W	6					
			115/230 V, 3 Ph, 4 W, Delta	14					
			110/190 V, 3 Ph, 4 W, Wye	17					
			120/208 V, 3 Ph, 4 W, Wye	18					
			220/380 V, 3 Ph, 4 W, Wye	21					
			230/400 V, 3 Ph, 4 W, Wye	3					
			240/416 V, 3 Ph, 4 W, Wye	22					
	27EFOZD (1 Ph)	50	230 V, 1 Ph, 2 W	2					
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	27EFOZD (3 Ph)	50	115/230 V, 1 Ph, 3 W	6					
			115/230 V, 3 Ph, 4 W, Delta	14					
			110/190 V, 3 Ph, 4 W, Wye	17					
			120/208 V, 3 Ph, 4 W, Wye	18					
			220/380 V, 3 Ph, 4 W, Wye	21					
			230/400 V, 3 Ph, 4 W, Wye	3					
			240/416 V, 3 Ph, 4 W, Wye	22					
	28EFOZD (1 Ph)	50	230 V, 1 Ph, 2 W	2					
			115/230 V, 1 Ph, 3 W	6					
			240 V, 1 Ph, 2 W	13					
	28EFOZD (3 Ph)	50	115/230 V, 1 Ph, 3 W	6					
			115/230 V, 3 Ph, 4 W, Delta	14					
			110/190 V, 3 Ph, 4 W, Wye	17					
			120/208 V, 3 Ph, 4 W, Wye	18					
			220/380 V, 3 Ph, 4 W, Wye	21					
			230/400 V, 3 Ph, 4 W, Wye	3					
			240/416 V, 3 Ph, 4 W, Wye	22					

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Replacement controllers from Kohler Aftermarket Parts are shipped with factory settings for the 8.5/12RES.

Note: Setting the Ec parameter automatically selects the Ed parameter for the standard data inputs for that engine. If you change Ec, check the Ed setting.

Marine Diesel Model		Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	Battery Voltage	CANbus Comm.
				Uu*	Uc	Ec	Ed†	Bt	Cn‡
EOZD EFOZD	28EOZD (1 Ph)	60	120/240 V, 1 Ph, 3 W	1	0	7	1 (std.) or 3 (ops) †	12 or 24	0, 1, 6, 7, or 9 ‡
	28EOZD (3 Ph)	60	120/240 V, 1 Ph, 3 W	1					
			120/208 V, 3 Ph, 4 W, Wye	11					
			127/220 V, 3 Ph, 4 W, Wye	16					
			120/240 V, 3 Ph, 4 W, Delta	10					
			139/240 V, 3 Ph, 4 W, Wye	10					
			277/480 V, 3 Ph, 4 W, Wye	4					
	32EOZD (1 Ph)	60	120/240 V, 1 Ph, 3 W	1					
	32EOZD (3 Ph)	60	120/240 V, 1 Ph, 3 W	1					
			120/208 V, 3 Ph, 4 W, Wye	11					
			127/220 V, 3 Ph, 4 W, Wye	16					
			120/240 V, 3 Ph, 4 W, Delta	10					
			139/240 V, 3 Ph, 4 W, Wye	10					
			277/480 V, 3 Ph, 4 W, Wye	4					

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Replacement controllers from Kohler Aftermarket Parts are shipped with factory settings for the 8.5/12RES.

Note: Setting the Ec parameter automatically selects the Ed parameter for the standard data inputs for that engine. If you change Ec, check the Ed setting.

Figure 13 Controller Parameter Settings, Marine Diesel Models

Controller Parameter Settings, Residential/Commercial Models

Residential/ Commercial Model	Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	CO	Battery Voltage	CANbus Comm.
			Uu *	Uc	Ec	Ed†	CO	Bt	Cn‡
8.5RES and 12RES	60	120/240 V,1 Ph, 3W	1	1	0	5	N/A	12	0
	50	115/230 V,1 Ph	6	1	0	5	N/A	12	0
15RES	60	120/240 V, 1 Ph, 3 W	1	1	3	1	N/A	12	0, 1, or 6 ‡
30RES	60	120/240 V, 1 Ph, 3 W	1	1	6	1	N/A	12	0, 1, or 6 ‡
15RESA	60	120/240 V, 1 Ph, 3 W	1	1	12	N/A	N/A	12	0, 1, or 6 ‡
30RESA	60	120/240 V, 1 Ph, 3 W	1	1	11	N/A	N/A	12	0, 1, or 6 ‡
15RYG	60	120/240 V, 1 Ph, 3 W	1	1	3	1	N/A	12	0, 1, or 6 ‡
		120/208 V, Wye, 3 Ph, 4 W	11						
		127/220 V, Wye, 3 Ph, 4 W	16						
		120/240 V, Delta, 3 Ph, 4 W	10						
		139/240 V, Wye , 3 Ph, 4 W	10						
		277/480 V, Wye, 3 Ph, 4 W	4						
30RYG	60	120/240 V, 1 Ph, 3 W	1	1	6	1	N/A	12	0, 1, or 6 ‡
		120/208 V, Wye, 3 Ph, 4 W	11						
		127/220 V, Wye, 3 Ph, 4 W	16						
		120/240 V, Delta, 3 Ph, 4 W	10						
		277/480 V, Wye, 3 Ph, 4 W	4						
		139/240 V, Wye, 3 Ph, 4 W	10						
	50	110/220 V, 1 Ph, 3 W	7	1	6	1	N/A	12	0, 1, or 6 ‡
		110/190 V, Wye, 3 Ph, 4 W	17						
		120/208 V, Wye, 3 Ph, 4 W	18						
		110/220 V, Delta, 3 Ph, 4 W	17						
		220/380 V, Wye, 3 Ph, 4 W	21						
		240/416 V, Wye, 3 Ph, 4W	22						
		115/200 V, Wye, 3 Ph, 4 W	23						
		230/400, Wye, 3 Ph, 4 W	3						
15REYG	60	120/240 V, 1 Ph, 3 W	1	1	12	N/A	N/A	12	0, 1, or 6 ‡
		120/208 V, Wye, 3 Ph, 4 W	11						
		127/220 V, Wye, 3 Ph, 4 W	16						
		120/240 V, Delta, 3 Ph, 4 W	10						
		139/240 V, Wye , 3 Ph, 4 W	10						
		277/480 V, Wye, 3 Ph, 4 W	4						
30REYG	60	120/240 V, 1 Ph, 3 W	1	1	11	N/A	N/A	12	0, 1, or 6 ‡
		120/208 V, Wye, 3 Ph, 4 W	11						
		127/220 V, Wye, 3 Ph, 4 W	16						
		120/240 V, Delta, 3 Ph, 4 W	10						
		277/480 V, Wye, 3 Ph, 4 W	4						
		139/240 V, Wye, 3 Ph, 4 W	10						

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Replacement controllers from Kohler Aftermarket Parts are shipped with factory settings for the 8.5/12RES.

Note: Setting the Ec parameter automatically selects the appropriate Ed parameter for the standard data inputs for that engine. If you change Ec, check the Ed setting.

Residential/ Commercial Model	Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	CO	Battery Voltage	CANbus Comm.
			Uu *	Uc	Ec	Ed†	CO	Bt	Cn‡
30REYG	50	110/220 V, 1 Ph, 3 W	7	1	11	1	N/A	12	0, 1, or 6 ‡
		110/190 V, Wye, 3 Ph, 4 W	17						
		120/208 V, Wye, 3 Ph, 4 W	18						
		110/220 V, Delta, 3 Ph, 4 W	17						
		220/380 V, Wye, 3 Ph, 4 W	21						
		240/416 V, Wye, 3 Ph, 4W	22						
		115/200 V, Wye, 3 Ph, 4 W	23						
		230/400, Wye, 3 Ph, 4 W	3						
10REOD, 10REOZD, 15REOD, 15REOZD, 20REOD, and 20REOZD	60	120/240 V, 1 Ph	1	1	2	1 (std.) or 3 (ops) †	N/A	12	0, 1, or 6 ‡
		120/208 V, 3 Ph	11						
		127/220 V, 3 Ph	16						
		120/240 V, 3 Ph	10						
		139/240 V, 3 Ph	10						
		220/380 V, 3 Ph	19						
		277/480 V, 3 Ph	4						
	50	110/220 V, 1 Ph	7	1	2	1 (std.) or 3 (ops) †	N/A	12	0, 1, or 6 ‡
		110/190 V, 3 Ph	17						
		110/220 V, 3 Ph	15						
		220/380 V, 3 Ph	21						
		230/400 V, 3 Ph	3						
		240/416 V, 3 Ph	22						

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Replacement controllers from Kohler Aftermarket Parts are shipped with factory settings for the 8.5/12RES.

Note: Setting the Ec parameter automatically selects the appropriate Ed parameter for the standard data inputs for that engine. If you change Ec, check the Ed setting.

Figure 14 Controller Parameter Settings, Residential/Commercial Models

Controller Parameter Settings, Mobile Models

Mobile Model		Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	CO	Battery Voltage	CANbus Comm.
				Uu*	Uc	Ec	Ed†	CO	Bt	Cn‡
ERG	10ERG	60	120/240 V, 1 Ph, 3 W	1	2	3	1 (std.) or 3 (ops) †	0	12	0, 1, or 6 ‡
	13ERG	60	120/240 V, 1 Ph, 3 W	1						
	15ERG	60	120/240 V, 1 Ph, 3 W	1						
			120/208 V, 3 Ph, 4 W, Wye	11						
EORD EORZD EFORD EFORZD EORDB EORZDB EFORDB EFORZDB	9EFORD/ EFORZD/ EFORDB/ EFORZDB	50	220 V, 1 Ph, 2 W	12	2	2	1 (std.) or 3 (ops) †	N/A	12	0, 1, or 6 ‡
			115/230 V, 1 Ph, 3 W	6						
			240 V, 1 Ph, 2 W	13						
			110/220 V, 1 Ph, 3 W	7						
	10EORD/ EORZD/ EORDB/ EORZDB	60	120/240 V, 1 Ph, 3 W	1						
			120 V, 1 Ph, 3 W	0						
			120 V, 1 Ph, 2 W	0						
	12.5EFORD/ EFORZD/ EFORDB/ EFORZDB (1 Ph)	50	220 V, 1 Ph, 2 W	12						
			115/230 V, 1 Ph, 3 W	6						
			240 V, 1 Ph, 2 W	13						
			110/220 V, 1 Ph, 3 W	7						
	12.5EFORD/ EFORZD/ EFORDB/ EFORZDB (3 Ph)	50	110/190 V, 3 Ph, 4 W, Wye	17						
			110/220 V, 3 Ph, 4 W, Delta	15						
			110/220 V, 1 Ph, 3 W, Dogleg	7						
			115/230 V, 1 Ph, 3 W, Dogleg	6						
			220/380 V, 3 Ph, 4 W, Wye	21						
			230/400 V, 3 Ph, 4 W, Wye	3						
			240/416 V, 3 Ph, 4 W, Wye	22						
	15EORD/ EORZD/ EORDB/ EORZDB (1 Ph)	60	120/240 V, 1 Ph, 3 W	1						
	15EORD/ EORZD/ EORDB/ EORZDB (3 Ph)	60	120/208 V, 3 Ph, 4 W, Wye	11						
			127/220 V, 3 Ph, 4 W, Wye	16						
			120/240 V, 1 Ph, 3 W, Dogleg	1						
			120/240 V, 3 Ph, 4 W, Delta	10						
			139/240 V, 3 Ph, 4 W, Wye	10						
			220/380 V, 3 Ph, 4 W, Wye	19						
			277/480 V, 3 Ph, 4 W, Wye	4						
	16.5EFORD/ EFORZD/ EFORDB/ EFORZDB (1 Ph)	50	220 V, 1 Ph, 2 W	12						
			115/230 V, 1 Ph, 3 W	6						
			240 V, 1 Ph, 2 W	13						
			110/220 V, 1 Ph, 3 W	7						
	16.5EFORD/ EFORZD/ EFORDB/ EFORZDB (3 Ph)	50	110/190 V, 3 Ph, 4 W, Wye	17						
			110/220 V, 3 Ph, 4 W, Delta	15						
			110/220 V, 1 Ph, 3 W, Dogleg	7						
			115/230 V, 1 Ph, 3 W, Dogleg	6						
			220/380 V, 3 Ph, 4 W, Wye	21						
			230/400 V, 3 Ph, 4 W, Wye	3						
			240/416 V, 3 Ph, 4 W, Wye	22						

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Setting the Ec parameter automatically selects the appropriate Ed parameter for the standard data inputs for that engine. If you change Ec, verify that your Ed setting is correct.

Mobile Model		Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	CO	Battery Voltage	CANbus Comm.
				Uu*	Uc	Ec	Ed†	CO	Bt	Cn‡
EORD EORZD EFORD EFORZD EORDB EORZDB EFORDB EFORZDB	20EORD/ EORZD/ EORDB/ EORZDB (1 Ph)	60	120/240 V, 1 Ph, 3 W	1	2	2	1 (std.) or 3 (ops) †	N/A	12	0, 1, or 6 ‡
	20EORD/ EORZD/ EORDB/ EORZDB (3 Ph)	60	120/208 V, 3 Ph, 4 W, Wye	11		2				
			127/220 V, 3 Ph, 4 W, Wye	16						
			120/240 V, 1 Ph, 3 W, Dogleg	1						
			120/240 V, 3 Ph, 4 W, Delta	10						
			139/240 V, 3 Ph, 4 W, Wye	10						
			220/380 V, 3 Ph, 4 W, Wye	19						
			277/480 V, 3 Ph, 4 W, Wye	4						
	20EORZD/ EORZDB Marathon Coach	60	120/240 V, 1 Ph, 3W	1		2				
	25EFORZD/ EFORZDB (1 Ph)	50	220 V, 1 Ph, 2 W	12		7	9 (std.) or 11 (ops) †	N/A	12	0, 1, or 6 ‡
			115/230 V, 1 Ph, 3 W	6						
			240 V, 1 Ph, 2 W	13						
			110/220 V, 1 Ph, 3 W	7						
	25EFORZD/ EFORZDB (3 Ph)	50	110/190 V, 3 Ph, 4 W, Wye	17						
			110/220 V, 3 Ph, 4 W, Delta	15						
			110/220 V, 1 Ph, 3 W, Dogleg	7						
			115/230 V, 1 Ph, 3 W, Dogleg	6						
			220/380 V, 3 Ph, 4 W, Wye	21	2					
			230/400 V, 3 Ph, 4 W, Wye	3						
			240/416 V, 3 Ph, 4 W, Wye	22						
	30EORZD/ EORZDB (1 Ph)	60	120/240 V, 1 Ph, 3 W	1		7				
	30EORZD/ EORZDB (3 Ph)	60	120/208 V, 3 Ph, 4 W, Wye	11						
			127/220 V, 3 Ph, 4 W, Wye	16						
			120/240 V, 1 Ph, 3 W, Dogleg	1						
			120/240 V, 3 Ph, 4 W, Delta	10						
			139/240 V, 3 Ph, 4 W, Wye	10						
			220/380 V, 3 Ph, 4 W, Wye	19						
			277/480 V, 3 Ph, 4 W, Wye	4						
	33EFORZD/ EFORZDB (1 Ph)	50	220 V, 1 Ph, 2 W	12		7				
			115/230 V, 1 Ph, 3 W	6						
			240 V, 1 Ph, 2 W	13						
			110/220 V, 1 Ph, 3 W	7						
	33EFORZD/ EFORZDB (3 Ph)	50	110/190 V, 3 Ph, 4 W, Wye	17						
			110/220 V, 3 Ph, 4 W, Delta	15						
			110/220 V, 1 Ph, 3 W, Dogleg	7						
			115/230 V, 1 Ph, 3 W, Dogleg	6						
			220/380 V, 3 Ph, 4 W, Wye	21						
			230/400 V, 3 Ph, 4 W, Wye	3						
			240/416 V, 3 Ph, 4 W, Wye	22						

***** Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Setting the Ec parameter automatically selects the appropriate Ed parameter for the standard data inputs for that engine. If you change Ec, verify that your Ed setting is correct.

Mobile Model		Freq. Hz	Voltage, Phases	Volts, Hz	Market	Engine Type	Data Inputs	CO	Battery Voltage	CANbus Comm.
				Uu*	Uc	Ec	Ed†	CO	Bt	Cn‡
EORD EORZD EFORD EFORZD EORDB EORZDB EFORDB EFORZDB	40EORZD/ EORZDB (1 Ph)	60	120/240 V, 1 Ph, 3 W	1	2	7	9 (std.) or 11 (ops) †	N/A	12	0, 1, or 6 ‡
	40EORZD/ EORZDB (3 Ph)	60	120/208 V, 3 Ph, 4 W, Wye	11						
			127/220 V, 3 Ph, 4 W, Wye	16						
			120/240 V, 1 Ph, 3 W, Dogleg	1						
			120/240 V, 3 Ph, 4 W, Delta	10						
			139/240 V, 3 Ph, 4 W, Wye	10						
			220/380 V, 3 Ph, 4 W, Wye	19						
			277/480 V, 3 Ph, 4 W, Wye	4						

* Use voltage/frequency parameters Uu07–Uu23 only with ADC application program version 1.20 or higher.

† See Figure 7 for Ed settings with optional sender kits.

‡ See Figure 8 and Figure 9 for Cn settings with optional digital gauges (gauges are available on selected models only).

Note: Setting the Ec parameter automatically selects the appropriate Ed parameter for the standard data inputs for that engine. If you change Ec, verify that your Ed setting is correct.

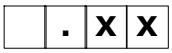
Figure 15 Controller Parameter Settings, Mobile Models

Controller Configuration Procedure (generator set not running)

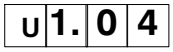
Hold the Select button:

Display:

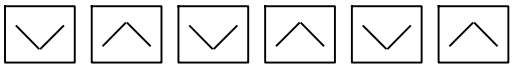
Move the generator set master switch to the RUN position. (The generator set engine will not start.)

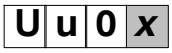


Wait about 5 seconds until the display shows the program version number. (The number may be different than the one shown here.)



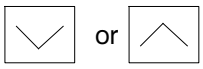
Press the down arrow key and then the up arrow key 3 times to enter the configuration mode. (This is the controller "password.")



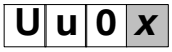


Now release the Select button.

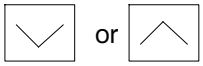
Press:



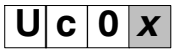
or To set the voltage/frequency setting for 60 Hz or 50 Hz models. (See Figure 21.)



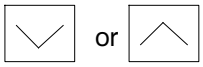
To step to the next parameter, unit configuration Uc.



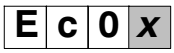
or To set the unit configuration setting, if necessary.



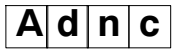
To step to the next parameter, engine type Ec.



or To set the engine type, if necessary.



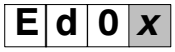
To step to the next parameter, advanced configuration mode or save mode selection.



Now either save your settings or enter the Advanced Configuration Mode to set the engine data inputs, battery voltage, and communications.

Press:

To enter advanced configuration mode. **Go to Figure 17.**



OR:

or 

To proceed to the save mode without entering the advanced configuration mode. **Go to Figure 18.**

Note: Be sure to save your settings before exiting the configuration mode. The controller reverts to the last *saved* settings when the master switch is moved to the OFF/RESET position.

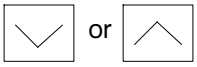
Note: Shaded boxes show which number in the controller display changes when the up or down arrow key is pressed. *x* denotes any number from 0 to 9.

Figure 16 Configuration Mode (system voltage/frequency, unit configuration, and engine type parameters)

Pressing the up arrow key at the Adnc display (See Figure 16) puts you into the Advanced Configuration Mode.

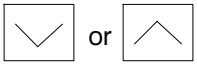
Display:

Press:

 To set the engine data input type. **E d 0 *x***

Note: Setting the Ec parameter automatically selects the appropriate Ed parameter for the standard senders for that engine. See Figure 19.

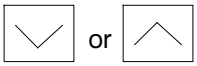
 To enter battery voltage selection mode.

 To toggle between 12 and 24 VDC.

12-volt models **B t 1 2**

24-volt models **B t 2 4**

 To enter communications selection mode.

 To set the communications parameter. **C n 0 *x***

 To enter SAVE mode. **Go to Figure 18.** **S A V E**

Note: Be sure to save your settings before exiting the configuration mode. The controller reverts to the last *saved* settings when the master switch is moved to the OFF/RESET position.

Note: Shaded boxes show which number in the controller display changes when the up or down arrow key is pressed. *x* denotes any number from 0 to 9.

Figure 17 Advanced Configuration Mode (engine data input types, battery voltage, and engine communications)

There are 3 options when the display says SAVE:

Display:

Press:

S A V E

 To return to the first parameter to check or change settings before saving. See Figure 16. **U u 0 *x***

or

 To save changes. **Y E S**

or

 To discard changes without saving. **n o**

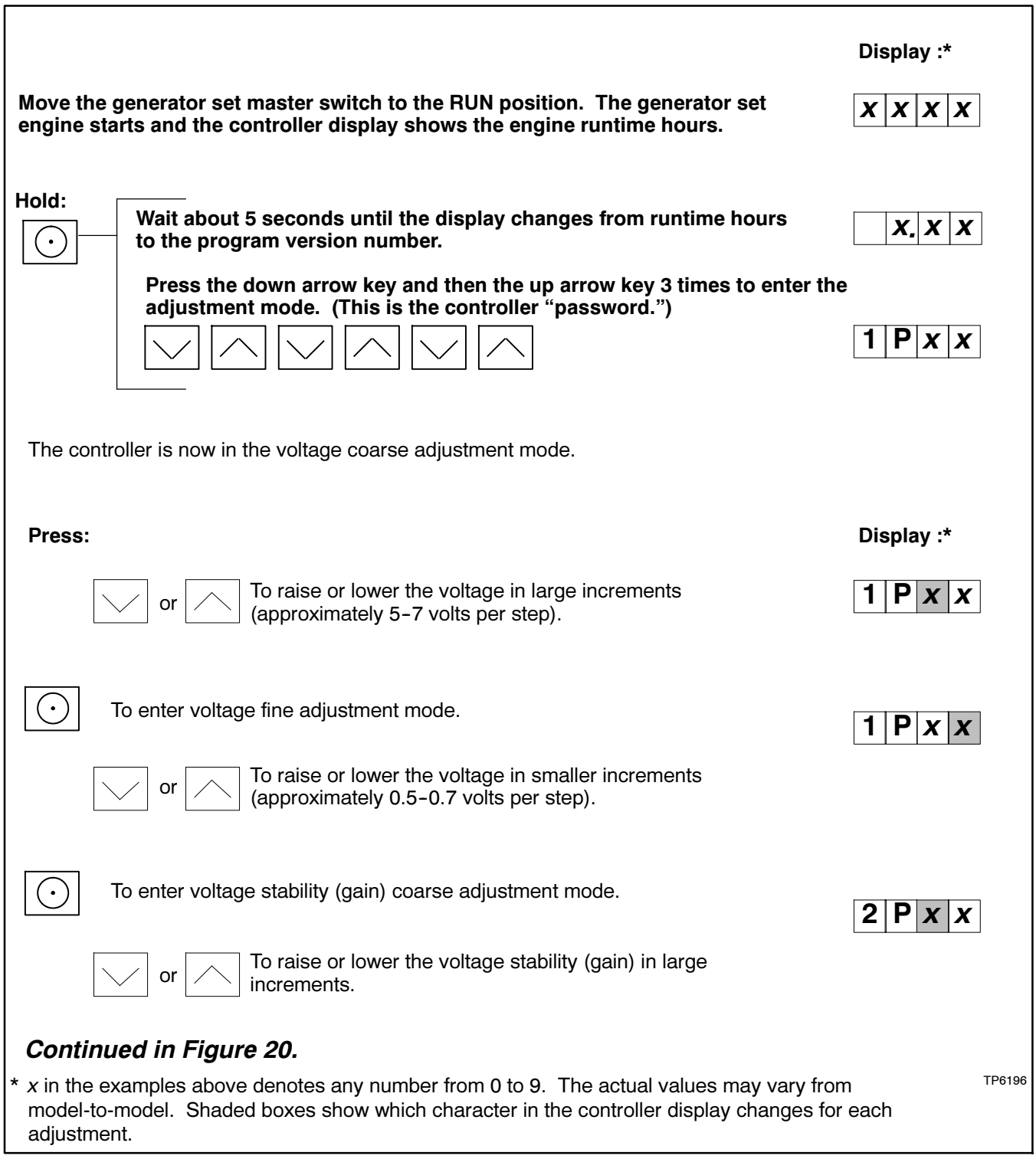
"Yes"or "no" flashes when the up or down arrow is pressed and then the controller exits the configuration mode. The display returns to the runtime hours. ***x x x x***

Now move the master switch to OFF/RESET.

* *x* in the runtime hours display above denotes any number from 0 to 9.

Figure 18 Save Mode (after configuring generator set parameters)

Output Voltage and Frequency Adjustment



* *x* in the examples above denotes any number from 0 to 9. The actual values may vary from model-to-model. Shaded boxes show which character in the controller display changes for each adjustment.

Figure 19 Output Voltage and Frequency Adjustments

Continued from Figure 19:

Press:		Display :*
⊙	To enter voltage stability (gain) fine adjustment mode.	2 P *x* *x*
﹀ or ﹀	To raise or lower the voltage stability (gain) in smaller increments.	
⊙	To enter volts/Hz adjustment mode.	3 P 0 *x*
﹀ or ﹀	To raise or lower the volts/Hz: 00=low; 09= high	
⊙	To enter engine governor speed coarse adjustment mode.	4 P *x* *x*
﹀ or ﹀	To raise or lower the engine speed in large increments.	
⊙	To enter engine governor speed fine adjustment mode.	4 P *x* *x*
﹀ or ﹀	To raise or lower the engine speed in smaller increments.	
⊙	To enter engine governor stability (gain) coarse adjustment mode.	5 P *x* *x*
﹀ or ﹀	To raise or lower the engine governor stability (gain) in large increments.	
⊙	To enter engine governor stability (gain) fine adjustment mode.	5 P *x* *x*
﹀ or ﹀	To raise or lower the engine governor stability (gain) in smaller increments.	
⊙	To enter SAVE mode. **Go to Figure 18.**	S A V E

Note: Be sure to save your settings before exiting the adjustment mode. The controller reverts to the last *saved* settings when the master switch is moved to the OFF/RESET position.

***** Shaded boxes show which character in the controller display changes for each adjustment. *x* in the examples above denotes any number from 0 to 9. The actual values may vary from model-to-model.

Figure 20 Output Voltage and Frequency Adjustments, Continued

Appendix A Parameter Summary Tables

Setting	Definition	Connect
Uu00	Single phase, 2 Wire, 60 Hz, 100 VAC	1Ph, 2W
	Single phase, 3 Wire, 60 Hz, 100 VAC	1Ph, 3W
	Single phase, 2 Wire, 60 Hz, 120 VAC	1Ph, 2W
	Single phase, 3 Wire, 60 Hz, 120 VAC	1Ph, 3W
Uu01 *	Single phase, 3 Wire, 60 Hz, 120/240 VAC	1Ph, 3W
	Single phase, 3 Wire, 60 Hz, 120/240 VAC	Dogleg
Uu02	Single phase, 2 Wire, 50 Hz, 230 VAC	1Ph, 2W
	Single phase, 3 Wire, 50 Hz, 115/230 VAC	1Ph, 3W
Uu03	Three phase, 4 Wire, 50 Hz, 230/400 VAC	Wye
Uu04	Three phase, 4 Wire, 60 Hz, 277/480 VAC	Wye
Uu05	Single phase, 2 Wire, 50 Hz, 100 VAC	1Ph, 2W
	Single phase, 3 Wire, 50 Hz, 100 VAC	1Ph, 3W
	Single phase, 2 Wire, 50 Hz, 110 VAC	1Ph, 2W
	Single phase, 3 Wire, 50 Hz, 110 VAC	1Ph, 3W
	Single phase, 2 Wire, 50 Hz, 115 VAC	1Ph, 2W
Uu06	Single phase, 3 Wire, 50 Hz, 115/230 VAC	1Ph, 3W
	Single phase, 3 Wire, 50 Hz, 115/230 VAC	Dogleg
Uu07 †	Single phase, 3 Wire, 50 Hz, 110/220 VAC	1Ph, 3W
	Single phase, 3 Wire, 50 Hz, 110/220 VAC	Dogleg
Uu08 †	Single phase, 3 Wire, 60 Hz, 100/200 VAC	1Ph, 3W
Uu09 †	Single phase, 3 Wire, 50 Hz, 100/200 VAC	1Ph, 3W
Uu10 †	Three phase, 4 Wire, 60 Hz, 120/240 VAC	Delta
	Three phase, 4 Wire, 60 Hz, 139/240 VAC	Wye
Uu11 †	Three phase, 4 Wire, 60 Hz, 120/208 VAC	Wye
Uu12 †	Single phase, 2 Wire, 50 Hz, 220 VAC	1Ph, 2W
Uu13 †	Single phase, 2 Wire, 50 Hz, 240 VAC	1Ph, 2W
Uu14 †	Three phase, 4 Wire, 50 Hz, 115/230 VAC	Delta
Uu15 †	Three phase, 4 Wire, 50 Hz, 110/220 VAC	Delta
Uu16 †	Three phase, 4 Wire, 60 Hz, 127/220 VAC	Wye
Uu17 †	Three phase, 4 Wire, 50 Hz, 110/190 VAC	Wye
Uu18 †	Three phase, 4 Wire, 50 Hz, 120/208 VAC	Wye
Uu19 †	Three phase, 4 Wire, 60 Hz, 220/380 VAC	Wye
Uu20 †	Three phase, 4 Wire, 60 Hz, 240/416 VAC	Wye
	Three phase, 4 Wire, 60 Hz, 230/400 VAC	Wye
Uu21 †	Three phase, 4 Wire, 50 Hz, 220/380 VAC	Wye
Uu22 †	Three phase, 4 Wire, 50 Hz, 240/416 VAC	Wye
Uu23 †	Three phase, 4 Wire, 50 Hz, 115/200 VAC	Wye

* Factory setting for replacement controllers.

† Check the generator set spec sheet for voltage configurations applicable to each model. Use voltage/frequency parameters Uu07-Uu23 only with ADC application program version 1.20 or higher.

Figure 21 Voltage/Frequency Parameter Uu Settings

Uc Setting	Description
Uc00	Marine
Uc01 *	Standby (Residential/Commercial)
Uc02	Mobile

* Factory setting for replacement controllers.

Figure 22 Unit Configuration Uc

Setting	Generator Set Model Applications	Engine
Ec00 *	8.5/12RES	Kohler CH20, CH740
Ec01	4.5EFOD, 6EOD, 6.5EFOZD, 8EOZD	Perkins 403C-07 Yanmar 3TNE74
Ec02	7EFOZD, 9EOZD, 8.5-17.5EFOZD, 10-20EOZD, 9-16.5EFORD/EFORZD, 10-20EORD/EORZD, 9-16.5EFORDB/EFORZDB, 10-20EORDB/EORZDB 20EORZD/EORZDB Marathon Coach, 10/15/20REOD/REOZD, 20EFOZD (without preheat option), 23/24EOZD (without preheat option)	Yanmar 3TNV76, 82, 84, 88 Yanmar 4TNV84, 88, 98
Ec03	9/11EFG, 10/13/15EG, 9/11EFGD, 10/13/15EGD, 10/13/15ERG, 15RYG, 15RES,	GM 1.6L
Ec04	4/6EFCD, 5/7.3ECD	Kawasaki FD501D
Ec05	Not assigned	
Ec06	30RYG, 30RES	GM 1.6L
Ec07	23-28EFOZD, 28-32EOZD, 25-33EFORZD, 30-40EORZD, 25-33EFORZDB, 30-40EORZDB	Yanmar 4TNV98
Ec08	12RESM1	Kohler CH20, CH740
Ec09	20EFOZD with preheat option, 23/24EOZD with preheat option	Yanmar 4TNV84
Ec10	13/15EGZ, 13/15EGZD with PTO	GM 1.6L
Ec11	30RESA, 30REYG	GM 1.6L
Ec12	15RESA, 15REYG	GM 1.6L
* Factory setting for replacement controllers.		

Figure 23 Engine Configuration Parameter Ec

Model	Sender Kit	Ed
5/7.3ECD 4/6EFCD	None	0
	GM45891-KA1 *	No Change
6EOD 4.5EFOD	None	1
	GM32112-KA1 and -KP1 †	3
	GM50552-KA1 *	No Change
	GM47164-KP1 ‡	No Change
8-32EOZD 6.5-28EFOZD	None	1
	GM32112-KA1 and -KP1 *	3
	GM50552-KA1 †	No Change
10/13/15EG 9/11EFG 13/15EGZ	None	1
	GM35299-KA1 and -KP1 *	3
10/13/15EGD 9/11EFGD 13/15EGZD	None	3
10-20EORD/B 10-20EORZD/B 9-16.5EFORD/B 9-16.5EFORZD/B	GM46308-KP1 ‡	No Change
* OP and WT sender kits † Oil pressure sender kits ‡ Electronic governor kit **Note:** For other models, refer to the parameter setting tables.		

Figure 24 Ed settings with Optional Sender Kits

Setting	Description
Bt12 *	Battery voltage 12 VDC
Bt24	Battery voltage 24 VDC
* Factory setting for replacement controllers.	

Figure 25 Battery Voltage Parameter Bt

Cn Setting	Description
Cn00	No CAN communication
Cn01	J1939 CAN communication, continuous power to ADC*
Cn02	Smartcraft™ gauge for generator set #1 with ECM †
Cn03	Smartcraft™ gauge for generator set #2 with ECM †
Cn04	Smartcraft™ gauge for generator set #3 with ECM †
Cn05	Smartcraft™ gauge for generator set #4 with ECM †
Cn06	J1939 CAN communication, ADC power down after 1 hour for either:* a. Remote start/stop switch b. Automatic transfer switch c: Remote digital gauge GM32337-KP2 with remote start/stop switch and replacement harness
Cn07	Smartcraft™ gauge for generator set #1 without ECM †
Cn08	Smartcraft™ 2-inch gauge for generator set #1 with ECM ‡
Cn09	Smartcraft™ 2-inch gauge for generator set #1 without ECM ‡

* For ADCs with removable power mode jumpers, refer to TT-1439 for power down information.
† Smartcraft™ settings for ADC code version 2.00 or higher only, for models 5/7.3ECD and 4/6EFCD
‡ Smartcraft™ settings for ADC code version 2.20 or higher only.

Figure 26 Communication Parameter Cn

Voltage, Phases	Freq. Hz	Volts, Hz	Market	Engine Type	Data Inputs	Battery Voltage	CANbus Comm.
		Uu	Uc	Ec	Ed	Bt	Cn
120/240 V,1 Ph, 3W	60	1	1 (standby)	0	5	12	0

Figure 27 Factory Settings for Replacement Controllers (Configured for 8.5/12RES)

Parts Lists

Controller, ADC 2100 Service Replacement

Kit: GM34969		
Qty.	**Description**	**Part Number**
1	Controller Assy ADC 2100	GM28707
1	TT Program Loader Software	TT-1285
1	TT ADC 2100 Controller Replacement	TT-1364

Controller, ADC 2100 Service Replacement for Model 5/7.3ECD, 4/6EFCD, 10–15EGD, 9/11EFGD, and 13/15EGZD

Kit: GM48031		
Qty.	**Description**	**Part Number**
1	Controller Assy ADC 2100	GM47982
1	TT Program Loader Software	TT-1285
1	TT ADC 2100 Controller Replacement	TT-1364

Controller, ADC 2100 Service Replacement for 20EORZD spec number GM38880-SA1 and 20EORZDB spec number GM38880-SA2 28/32EOZD and 23/25/27/28EFOZD spec numbers GM55347-GA1 to -GA16

Kit: GM46826		
Qty.	**Description**	**Part Number**
1	Controller Assy ADC 2100	GM42037
1	TT Program Loader Software	TT-1285
1	TT ADC 2100 Controller Replacement	TT-1364

Notes

Notes