

INSTALLATION INSTRUCTIONS

Original Issue Date: 8/04

Model: **230-2000 kW Generator Sets
with DDC/MTU Series 60/2000/4000 Engines**

Market: **Industrial Generator Sets**

Subject: **Remote Speed Adjusting Control Kit GM30859-KP1**

Introduction

This kit provides remote engine speed adjustments with an approximate range of $\pm 5\%$ at 1800 rpm. This kit requires a generator set with an electronic governor.

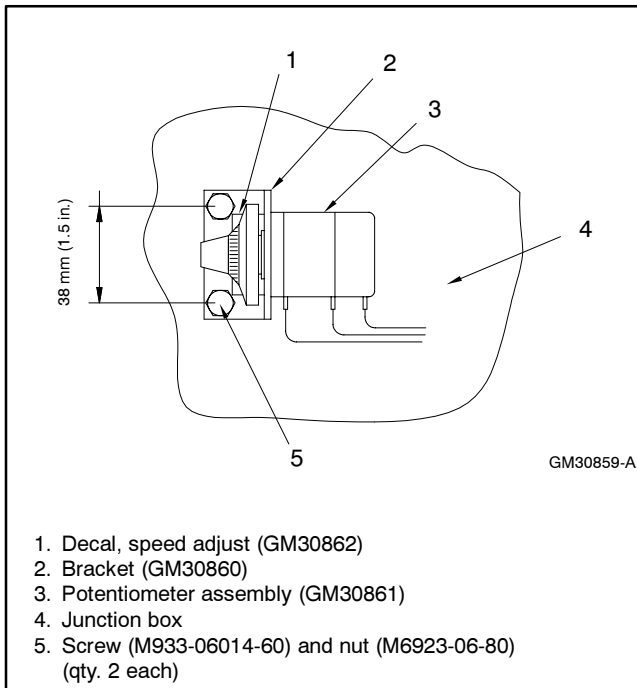


Figure 1 Remote Speed Adjusting Control

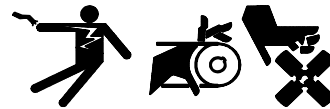
Read the entire installation procedure and compare the kit parts with the parts list in this publication before beginning installation. Perform the steps in the order shown.

Observe applicable local and national electrical codes when installing the wiring system.

Safety Precautions

Observe the following safety precautions when 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.

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.

Battery short circuits. Explosion can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Disconnect the battery before generator set installation or maintenance. Remove all jewelry before servicing the equipment. Use tools with insulated handles. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery. Never connect the negative (-) battery cable to the positive (+) connection terminal of the starter solenoid. Do not test the battery condition by shorting the terminals together.

Installation Procedure

1. Remove the generator set from service.

- 1.1 Place the generator set master switch in the OFF/RESET position.
- 1.2 Disconnect the power to the battery charger, if equipped.
- 1.3 Disconnect the generator set engine starting battery(ies), negative (-) lead first.

2. Installing the speed potentiometer.

Note: The following instruction describes mounting the potentiometer in the controller. Some switchgear applications may require the potentiometer kit installed with the switchgear components.

- 2.1 Remove the junction box panel(s) and screws.
- 2.2 Select a location on the junction box for mounting the kit. Recommended locations are shown in Figure 3.
- 2.3 Use bracket (GM30860) as a template and drill two 6.4 mm (0.25 in.) holes in junction box.
- 2.4 Remove burrs from holes and clean up metal chips.
- 2.5 With bracket (GM30860) surfaces clean and dry attach decal (GM30862) as shown in Figure 2.
- 2.6 Attach bracket (GM30860) to junction box using two screws (M933-06014-60) and nuts (M6923-06-80) as shown in Figure 3. Mount the bracket where the decal side of the bracket is facing toward the user.

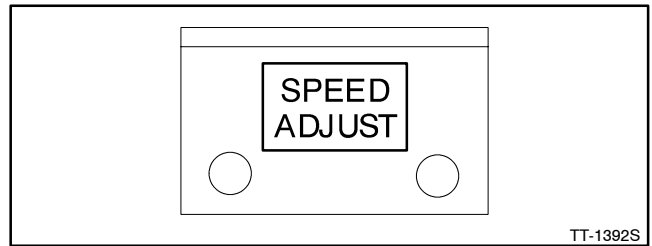


Figure 2 Bracket with Decal Attached

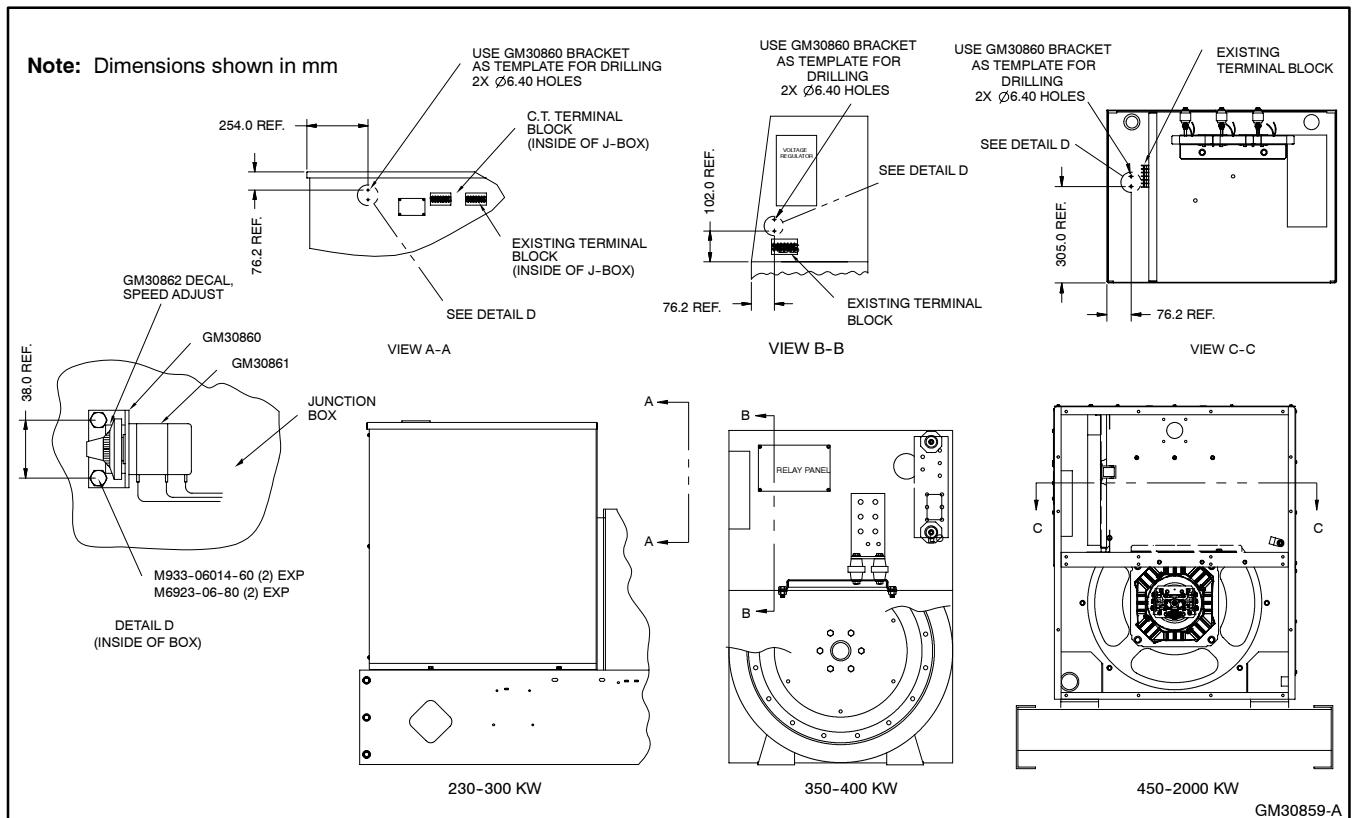


Figure 3 Remote Speed Potentiometer Installation

- 2.7 Remove the knob/dial and lock nut from the potentiometer shaft.
- 2.8 Place the potentiometer shaft through the bracket hole with the shaft end on the decal side of the bracket and install lock nut. Rotate potentiometer assembly so that the potentiometer metal tab aligns with the bracket index hole and tighten the lock nut.
- 2.9 Install the knob/dial on the potentiometer shaft. Tighten the knob/dial set screw.
- 2.10 Rotate the knob/dial to the approximate midpoint of the adjustment range.

3. Attaching the wiring harness.

- 3.1 Route the wiring harness attached to the potentiometer to the existing terminal block mounted in the junction box.
- 3.2 Connect the red, black, and white leads to the governor controller terminal strip as shown in Figure 4.

- 3.3 Coil the excess wiring harness and secure to the engine wiring harness with a cable tie or electrical tape (not supplied).
- 3.4 **DDEC-equipped DDC/MTU engines only.** See Figure 4. Remove and tape the following wire:
 - 542 with DDEC-equipped DDC/MTU Series 2000/4000 engines.
 - 545 with DDEC-equipped DDC/MTU Series 60 engines.
- 3.5 Pull any excess wiring harness back into the junction box. Coil the excess wiring harness and secure to the engine wiring harness with a cable tie or electrical tape (not supplied).

4. Replacing the generator set components.

- 4.1 Install the junction box panel(s) and screws.
5. **Place the generator set into service.**
 - 5.1 Place the generator set master switch in the OFF/RESET position.
 - 5.2 Reconnect the generator set engine starting battery(ies), negative (-) lead last.
 - 5.3 Reconnect the power to the battery charger, if equipped.
 - 5.4 Move the generator set master switch to AUTO for startup by remote transfer switch or remote start/stop switch.

6. Adjust the speed adjusting potentiometer.

Refer to the governor adjustment instructions for final adjustment.

Parts List

Remote Speed Adjusting Control Kit

Kit: GM30859-KP1		
Qty.	Description	Part Number
1	Potentiometer assembly (includes *)	GM30861
1	* Potentiometer	X-6136-19
1	* Knob/dial	X-6136-9
1	* Harness, wiring	—
1	* Nut, lock	—
1	Bracket	GM30860
1	Decal, speed adjust	GM30862
2	Screw, hex cap	M933-06014-60
2	Nut, hex, 6 mm	M6923-06-80

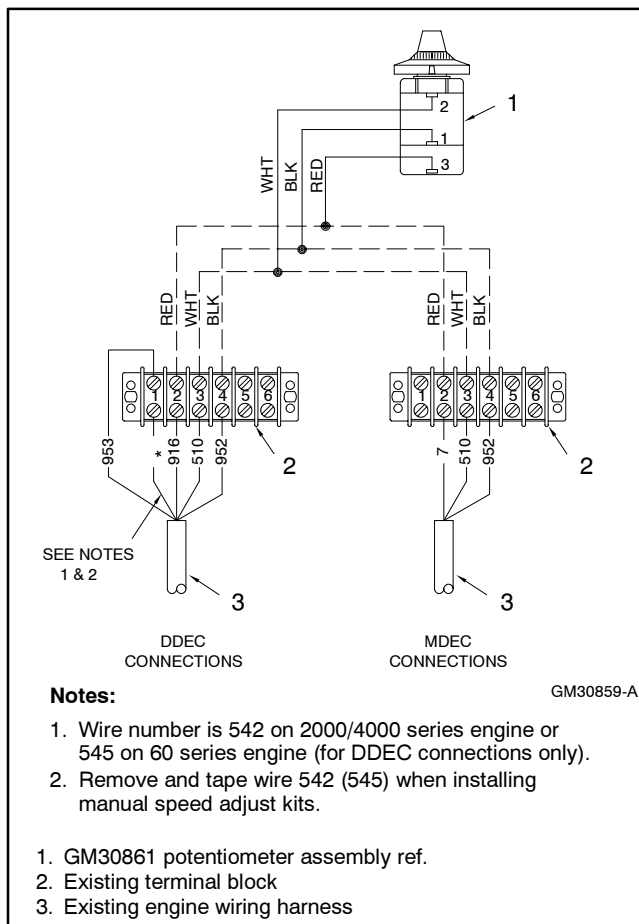


Figure 4 Remote Speed Adjusting Control Wiring Diagram