INSTALLATION INSTRUCTIONS

Original Issue Date: **3/03**
Model: **15–20 kW Generator Sets**
Market: **Industrial, Residential/Commercial, and Marine**
Subject: **Ignition Module Service Kit GM28758**

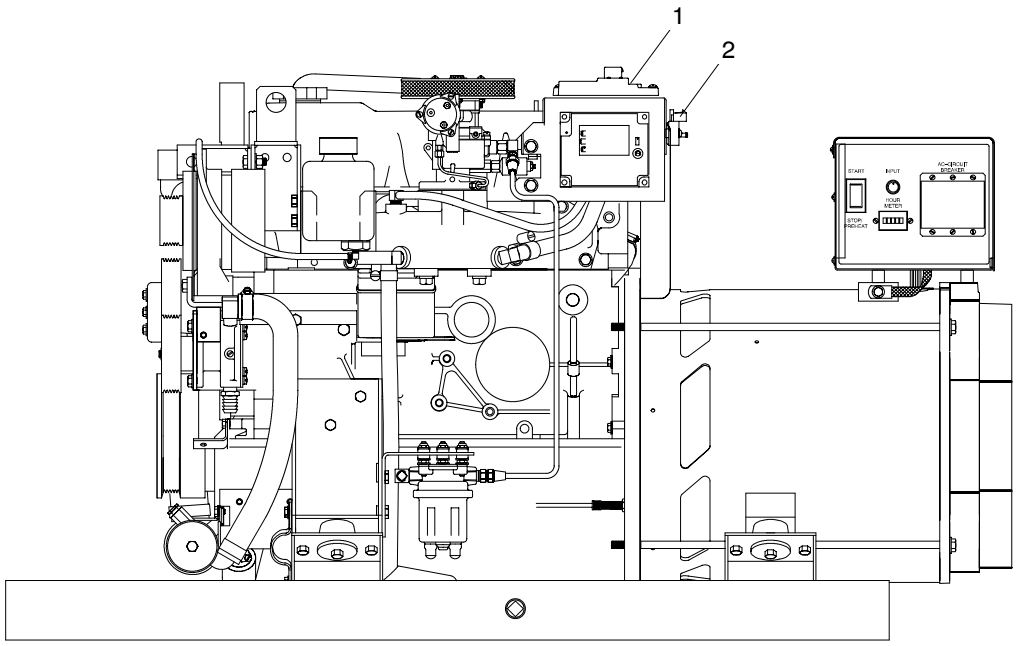
Introduction

Use Ignition Module Service Kit GM28758 to replace ignition module 326940 on 15–20 kW generator sets equipped with the Ford LRG-425 engine. Ignition control module GM28714-S and manifold air pressure (MAP) module GM17771-S are required to replace ignition module 326940, which is no longer available.

Industrial and residential/commercial 18/20 kW generator sets require the use of ignition control module bracket 326858, included in the kit. Marine 15/20 kW generator sets do not use bracket 326858.

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

See Figure 1 through Figure 3 for the installed kit locations.



1. Ignition control module (GM28714-S) location
2. MAP module (GM17771-S) location

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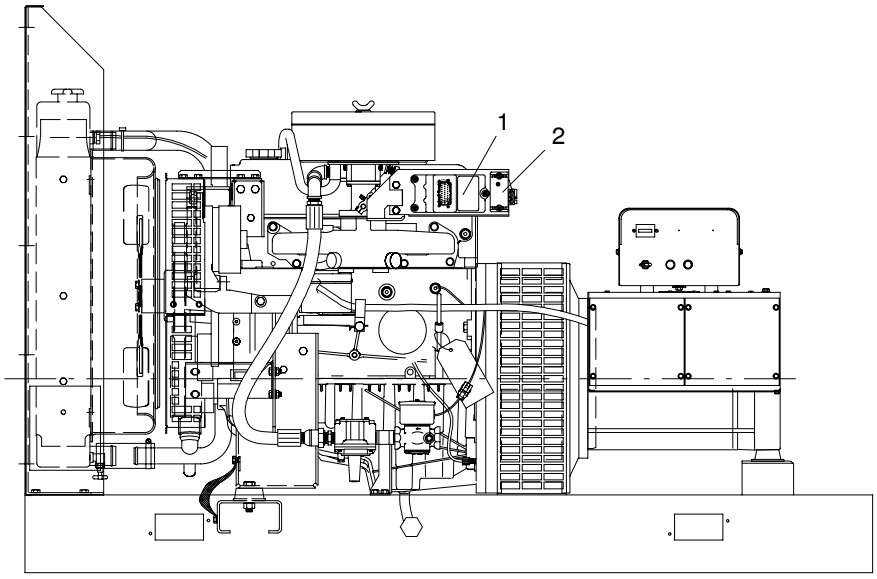
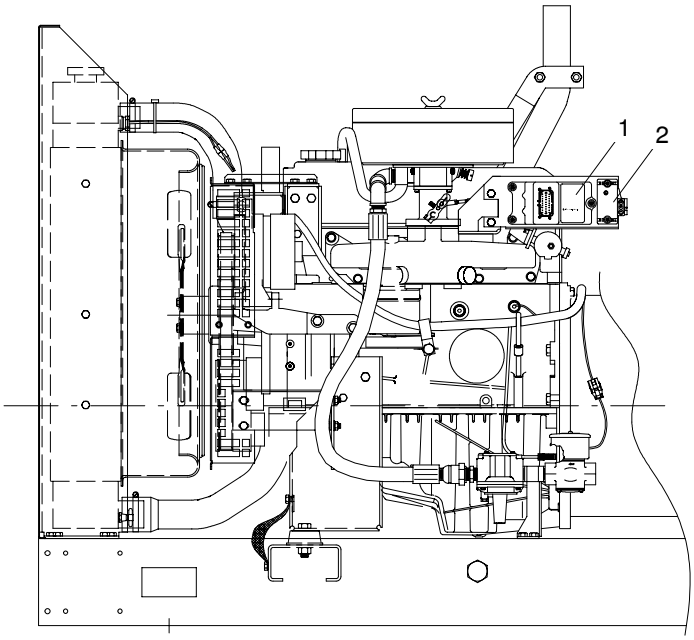
Figure 1 Installed Ignition Control Module and MAP Sensor Locations, Marine 15–20 kW Generator Set



1. Ignition control module (GM28714-S)
2. MAP module (GM17771-S) location

Figure 2 Installed Ignition Control Module and MAP Sensor Locations, 18 kW Residential/ Commercial Generator Set



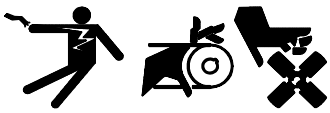
1. Ignition control module (GM28714-S) location
2. MAP module (GM17771-S) location

Figure 3 Installed Ignition Control Module and MAP Sensor Locations, 20 kW Industrial Generator Set

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.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or equipment connected to the set, disable the generator set as follows: (1) Place the generator set start/stop switch in the STOP position. (2) Disconnect the power to the battery charger, if equipped. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

Installation Procedure

1.1 Industrial and Residential/ Commercial 18/20 kW Generator Sets

1. Remove the generator set from service.

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

   b. Disconnect the power to the battery charger, if equipped.

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

2. Disconnect and remove the existing ignition control module.

3. Use two bolts (X-125-23) and two washers (X-25-85) to attach the ignition control module mounting bracket (326858) to the existing governor mounting bracket. See Figure 4.

4. Mount the new ignition control module (GM28714-S) and manifold air pressure (MAP) module (GM17771-S) onto the ignition control module bracket (326858). See Figure 4.

   a. Use three screws (X-50-25) and three washers (X-25-36) to secure the ignition control module to the ignition control module bracket.

   b. Use two screws (X-50-25) and two washers (X-25-36) to secure the MAP module to the ignition control module bracket.

5. Perform the following steps to connect the new jumper harness (GM28715-S) to the existing engine harness. See Figure 5.

   a. Locate and disconnect the crank position sensor connector on the existing harness on the front of the engine near the crankshaft pulley. Connect the crank position sensor connector of the new jumper harness.

   b. Plug the MAP connector on the jumper harness to the MAP module (GM17771-S).

   c. Connect the ignition control module connector on the jumper harness to the ignition control module (GM28714-S).

   d. Connect the ignition control module connector on the existing harness to the main engine harness connector on the jumper harness.

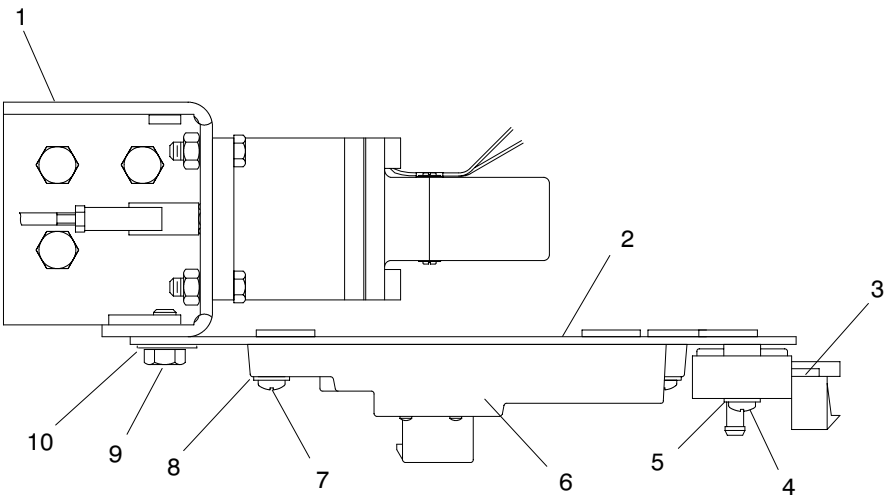
   e. There are two unused connectors. Use the cable ties (X-468-1) to secure the unused leads and secure the new harness to the existing harness.

6. Restore the generator set to service.

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

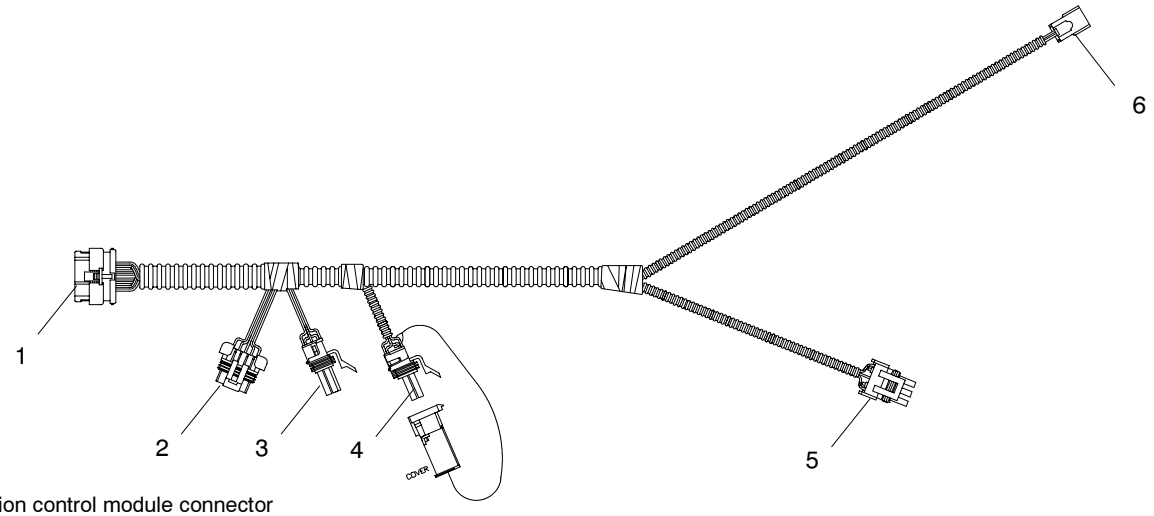
   b. Reconnect the generator set engine starting battery, negative (-) lead last.

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



1. Existing governor mounting bracket
2. Ignition module mounting bracket 326858
3. Manifold air pressure (MAP) module GM17771-S
4. Screw, X-50-25 (2 ea.)
5. Washer, X-25-36 (2 ea.)
6. Ignition control module GM28714-S
7. Screw, X-50-25 (3 ea.)
8. Washer, X-25-36 (3 ea.)
9. Bolt, X-125-23 (2 ea.)
10. Washer, X-25-85 (2 ea.)

Figure 4 Ignition Module and MAP Sensor Installation on Industrial and Residential/Commercial18/20 kW Generator Sets, Top View



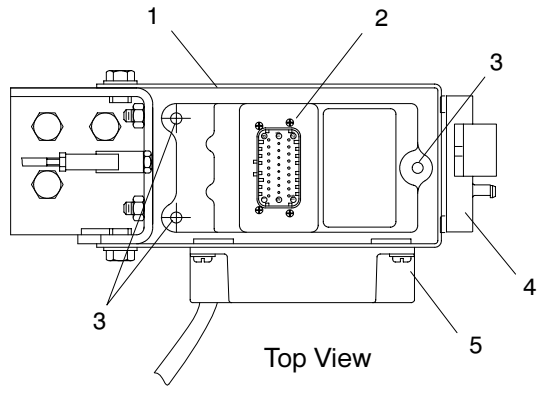
1. Ignition control module connector
2. Main engine harness connector
3. Not used
4. Diagnostic linkup
5. Manifold air pressure (MAP) connector
6. Crank position sensor connector

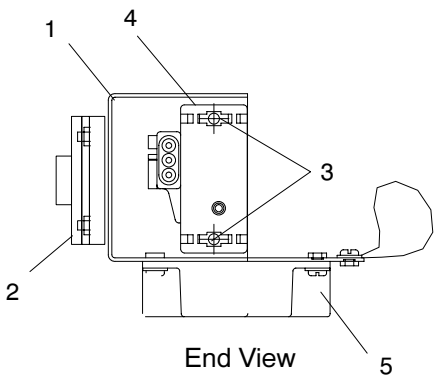
Figure 5 Jumper Harness GM28715-S

1.2 Marine 15/20 kW Generator Sets

Note: Marine models do not use the mounting bracket (326858), two bolts (X-125-23), and two washers (X-25-85) included with the kit.

1. Remove the generator set from service.
   a. Place the generator set start/stop switch in the STOP position.
   b. Disconnect the power to the battery charger, if equipped.
   c. Disconnect the generator set engine starting battery(ies), negative (–) lead first.
2. Locate the mounting bracket for the governor module and ignition control module and remove it from the generator set. See Figure 1.
3. Disconnect and remove the existing ignition control module.
4. Use the ignition control module (GM28714-S) as a template to mark three holes in the top of the existing governor controller mounting bracket. See Figure 6.
5. Drill three 6.4 mm (0.25 in.) holes at the locations marked.
6. Use the manifold air pressure (MAP) module (GM17771-S) as a template to mark the locations of two holes on the lower back side of the existing governor controller mounting bracket. See Figure 6.
7. Drill two 6.4 mm (0.25 in.) holes at the marked locations.
8. Use three screws (X-50-25), washers (X-25-36) and nuts (X-6210-5) to mount the ignition control module (GM28714-S) in the orientation shown in Figure 6.
9. Use two screws (X-50-25), washers (X-25-36) and nuts (X-6210-5) to mount the MAP module (GM17771-S) in the orientation shown in Figure 6.
10. Reinstall the mounting bracket onto the generator set.
11. Perform the following steps to connect the new jumper harness (GM28715-S) to the existing engine harness. See Figure 5.
    a. Locate and disconnect the crank position module connector on the existing harness on the front of the engine near the crankshaft pulley. Connect the crank position sensor connector of the new jumper harness.
    b. Plug the MAP connector on the jumper harness to the MAP module (GM17771-S).
    c. Connect the ignition control module connector on the jumper harness to the ignition control module (GM28714-S).
    d. Connect the ignition control module connector on the existing harness to the main engine harness connector on the jumper harness.





1. Existing governor mounting bracket
2. Ignition control module GM28714-S
3. Screw X-50-25, washer X-25-36, and nut X-6210-5
4. MAP module GM17771-S
5. Existing governor control module

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Figure 6 Ignition Control Module and MAP Sensor Installation on Marine 15/20 kW Generator Sets

e. There are two unused connectors. Use the cable ties (X-468-1) to secure the unused leads and secure the new harness to the existing harness.

12. Restore the generator set to service.

    a. Check that the generator set start/stop switch is in the STOP position.

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

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

Wiring Diagram

The wiring diagram for the new ignition module (GM28714-S) and MAP module (GM17771-S) is shown in Figure 7 for reference.

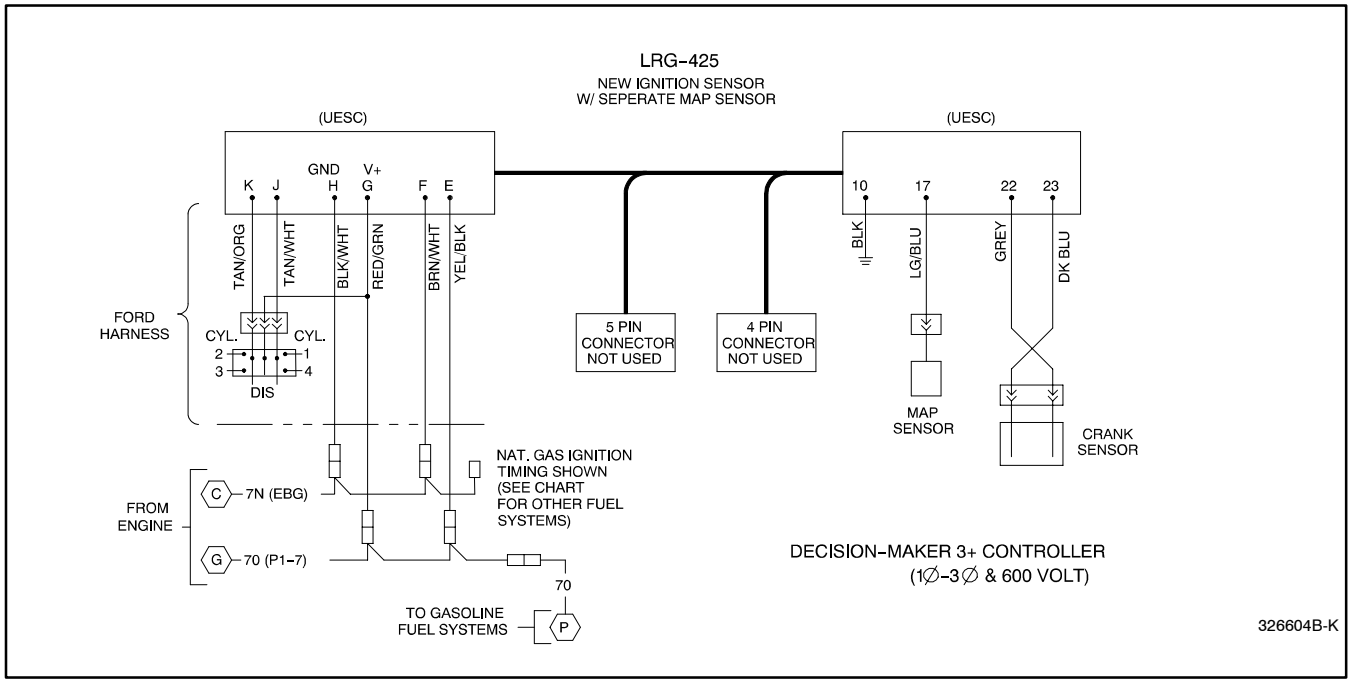

Figure 7 Wiring Diagram

Timing Adjustment

The timing setting for the new ignition module (GM28714-S) is the same as the timing for module 326940 and should not require adjustment when the module is replaced. If timing adjustments are required, refer to Figure 8.

FUEL TYPE	LRG-425 IGN. WIRING	IGN. TIMING
NATURAL GAS	CONNECT YEL/BLK LEAD TO LEAD ”70” & BRN/WHT LEAD TO LEAD ”7N”	29 °
LP GASEOUS	CONNECT BRN/WHT LEAD TO LEAD ”7N”, DO NOT CONNECT YEL/BLK LEAD	24 °
GASOLINE	DO NOT CONNECT EITHER YEL/BLK OR BRN/WHT LEADS	11 °
DUAL FUEL NAT. GAS & GASOLINE	DO NOT CONNECT EITHER YEL/BLK OR BRN/WHT LEADS	11 °
DUAL FUEL L.P. & GASOLINE	DO NOT CONNECT EITHER YEL/BLK OR BRN/WHT LEADS	11 °
DUAL FUEL NAT. GAS & L.P.	CONNECT BRN/WHT LEAD TO LEAD ”7N”, DO NOT CONNECT YEL/BLK LEAD	24 °

NOTE (LRG-425 ONLY):
CONNECTING YEL/BLK LEAD TO 12V (LEAD ”70”)
WILL ADVANCE TIMING 5 ° OR TO GROUND
(LEAD ”7N”) WILL RETARD TIMING 3 °

326604B-K

Figure 8 Ignition Timing Adjustment

Parts List

Ignition Module Service Kit

Kit: GM28758		
Qty.	**Description**	**Part Number**
1	Bracket, ignition module mtg.	326858
1	Manifold, air pressure module	GM17771-S
1	Ignition control module	GM28714-S
1	Harness, wiring	GM28715-S
2	Bolt, hex cap	X-125-23
5	Washer, plain, .219 ID x .5 in. OD	X-25-36
2	Washer, plain, .344 ID x .687 in. OD	X-25-85
8	Cable tie	X-468-1
5	Screw, slotted round head machine	X-50-25
5	Nut, flange whiz, 10-24	X-6210-5

Notes