

## INSTALLATION INSTRUCTIONS

Original Issue Date: **3/08**

Model: **6-60 kW Residential and Light Commercial Generator Sets**

Market: **Residential/Commercial**

Subject: **Maintenance Service Kits GM62345, GM62346, GM62347, GM62348, GM83718, GM86771, GM89979, GM90365, GM90366, GM93396, and GM100209**

### Introduction

This kit provides items necessary for general engine maintenance and service on 6-60 kW residential and light commercial generator sets listed in Figure 1.


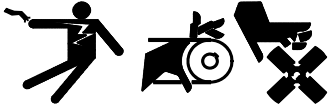
Read the entire installation procedure before beginning installation. Perform the steps in the order shown.

Generator Set	Service Kit Number	Sales Kit Number
8RESV(L)	GM90365	GM90365-SKP1-QS
8.5RES	GM62345	GM62345-SKP1-QS
10/12RESV(L)	GM90366	GM90366-SKP1-QS
6VSG, 12RES(L), 14RES(A)(AL)(L)	GM62346	GM62346-SKP1-QS
15RES(A)/R(E)YG, 30RES(A)/R(E)YG	GM62348	GM62348-SKP1-QS
17/18RES(L), 20RES(A)(AL)(B)(C)(CL)(D)(L)	GM62347	GM62347-SKP1-QS
24RCL	GM93396	GM93396-SKP1-QS
30RCL, 38RCLB	GM100209	GM100209-SKP1-QS
38RCL	GM86771	GM86771-SKP1-QS
48RCL	GM83718	GM83718-SKP1-QS
48RCLA and 60RCL	GM89979	GM89979-SKP1-QS



**Figure 1** Kits

## Safety Precautions



Observe the following safety precautions while installing the kit.

 <b>WARNING</b>

<b>Accidental starting.</b> <b>Can cause severe injury or death.</b>
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 equipment connected to the set, disable the generator set as follows: (1) Press the generator set off/reset button to shut down the generator set. (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.

 <b>WARNING</b>

<b>Risk of fire.</b> <b>Can cause severe injury or death.</b>
Do not smoke or permit flames or sparks near fuels or the fuel system.

**Servicing the air cleaner. A sudden backfire can cause severe injury or death.** Do not operate the generator set with the air cleaner removed.

 <b>WARNING</b>

<b>Hot engine oil.</b> <b>Can cause severe injury or death.</b>
Avoid skin contact with hot oil. Do not start or operate the generator set with the engine oil filler cap removed, as hot oil can spray out. Ensure that the lubrication system is not under pressure when servicing. Do not work on the generator set until it cools.

**Used engine oil. Contact with used engine oil may cause severe skin irritation. Repeated and prolonged skin exposure may have other health risks.** Used engine oil is a suspected carcinogen. Avoid contact with skin. Thoroughly wash your hands and nails with soap and water shortly after handling used engine oil. Wash or dispose of clothing or rags containing used engine oil. Dispose of used engine oil in a responsible manner. Contact your local recycling center for disposal information and locations.

 <b>WARNING</b>

<b>Hot engine and exhaust system.</b> <b>Can cause severe injury or death.</b>
Do not work on the generator set until it cools.

**Servicing the exhaust system. Hot parts can cause severe injury or death.** Do not touch hot engine parts. The engine and exhaust system components become extremely hot during operation.

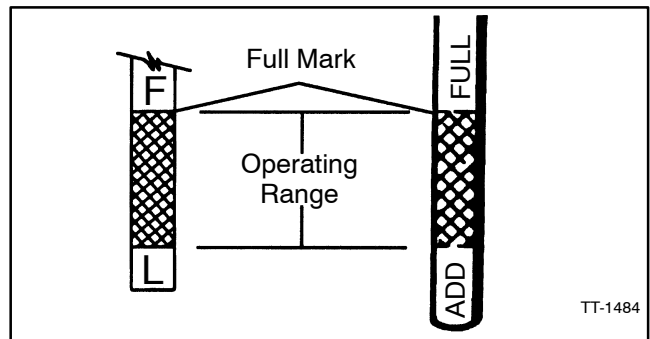
# Maintenance Procedures

## Oil and Oil Filter

When possible, drain the oil while it is warm.

1. Before working on the generator set or connected equipment, disable the generator set as follows:
  - a. Press the OFF button on the generator set controller.
  - b. Disconnect the power to the battery charger.
  - c. Remove the battery cables, negative (-) lead first.
2. **For most models [except 8/10/12RESV(L)],** a drain plug is located on the service side of the generator set, opposite the starter. If you have difficulty locating the drain plug, see the service view in your generator set operation manual. For **8/10/12RESV(L)**, proceed to step 3.
  - a. Remove one oil drain plug and the oil fill cap/dipstick. Aim the drain tube into catch basin and open the valve near the oil sump. Allow ample time for complete drainage.
  - b. Close the valve and place the tube back in the clip on the bulkhead wall.
  - c. Remove the old filter and wipe off the adapter/base on the engine.
  - d. Proceed to step 4.
3. **For 8/10/12RESV(L) models,** use the following procedure to avoid spilling oil into the alternator.
  - a. To prevent oil from spilling into the alternator, cover the alternator with rags around the areas near the oil drain valve and oil filter.
  - b. Place a drain tube (3/8 in. inside diameter) onto the oil drain valve and place the end of the tube into a drain pan. The tube will reduce the potential for spilled oil.
  - c. Open the oil drain valve on the engine.
  - d. Remove the dipstick and oil fill cap. Allow time for the engine oil to drain completely.

- e. Close the oil drain valve and remove the oil drain tube.
  - f. Tilt the filter upward to prevent spilling as you remove the oil filter. Remove the old filter and wipe off the adapter/base on the engine.
4. Place a new replacement filter in a shallow pan with the open end up. Pour new oil (provided) through the threaded center hole. Stop pouring when the oil reaches the bottom of threads. Allow a minute or two for the oil to be absorbed by the filter material.
  5. Apply a thin film of clean oil to the rubber gasket on the new oil filter.
  6. Install new oil filter. Hand tighten filter clockwise until the rubber gasket contacts the adapter, then tighten the filter an additional 3/4–1 turn.
  7. Fill the crankcase with the new oil to the *F* or *FULL* mark on the dipstick. Use a funnel to prevent spilling. Always check the level with the dipstick before adding more oil. Never operate the engine with the oil level below the *L* or *ADD* mark, or above the *F* or *FULL* mark. See Figure 2.
  8. **For 8/10/12RESV(L) models,** remove the rags that were used to cover the alternator.



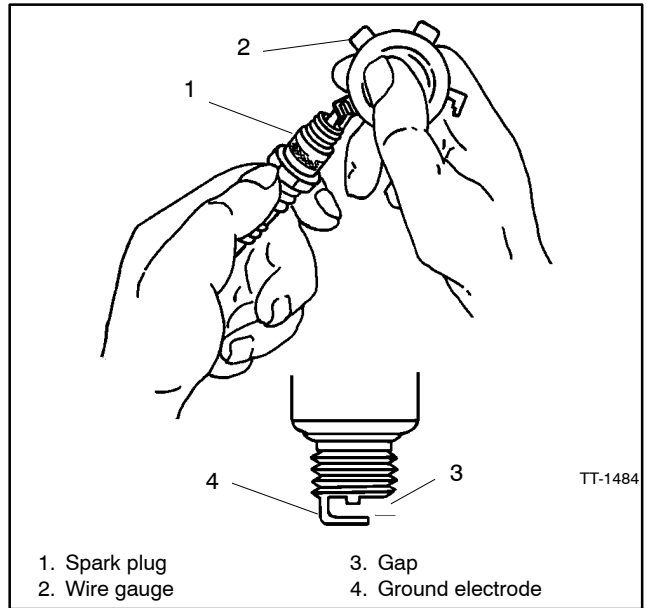
**Figure 2** Oil Level/Dipstick Detail

9. Reinstall the oil fill cap/dipstick and tighten securely.
10. Reconnect the battery cable, negative (-) lead last.
11. Test run the engine, check for leaks, and recheck the oil level.

## Spark Plugs

1. Before working on the generator set or connected equipment, disable the generator set as follows:
  - a. Press the OFF button on the generator set controller.
  - b. Disconnect the power to the battery charger.
  - c. Remove the battery cables, negative (-) lead first.
2. Before removing the spark plug(s), clean or blow out the area around the base of the plug(s) to keep dirt and debris out of the engine. Wear suitable eye protection, as required.
3. Using a spark plug socket, remove and discard the old spark plug(s).
  - 24RCL, 30RCL, and 38RCLB: 13/16 in. socket
  - Other models: 5/8 in. spark plug socket
4. Check and set the gap of the new spark plug(s) using a wire feeler gauge. See Figure 4. Adjust the gap by carefully bending the ground electrode. See Figure 3.
5. For easy removal, apply a light coating of anti-seize lubricant to the spark plug threads. Wipe away any excess compound.

6. Install the new spark plug(s) and torque as shown in Figure 4.
7. Reconnect the spark plug lead(s).
8. Reconnect the battery cable, negative (-) lead last.



**Figure 3** Servicing Spark Plug

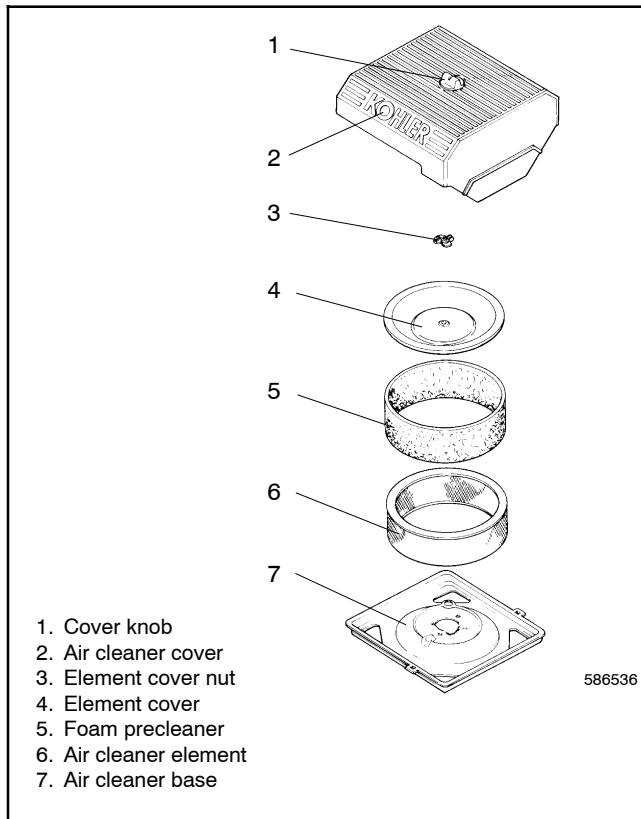
Model	8.5RES	6VSG, 8/10/12RESV(L), 12RES(L), 14RES(L), 14RESA(L), 17/18RES(L), 20RES(L), 20RESA(L), 20RESB, 20RESC(L), 20RESD	15RES(A), 15R(E)YG, 30RES(A), 30R(E)YG	24RCL	30RCL, 38RCLB	38RCL, 48RCL, 48RCLA, 60RCL
Spark plug gap, mm (in.)	0.51 (0.02)	0.76 (0.03)	0.8-0.9 (0.03-0.04)	0.9-1.0 (0.036-0.04)	0.7-0.8 (0.028-0.030)	0.89 (0.035)
Torque, Nm (ft. lb.)	24.4-29.8 (18-22)	24.4-29.8 (18-22)	25 (18)	18 (13.3)	25 (18.4)	15 (11)

**Figure 4** Spark Plug Gap and Torque

## Air Cleaner Element and Precleaner

### 6VSG, 8.5RES, 12RES(L), 14RES(A)(AL)(L)

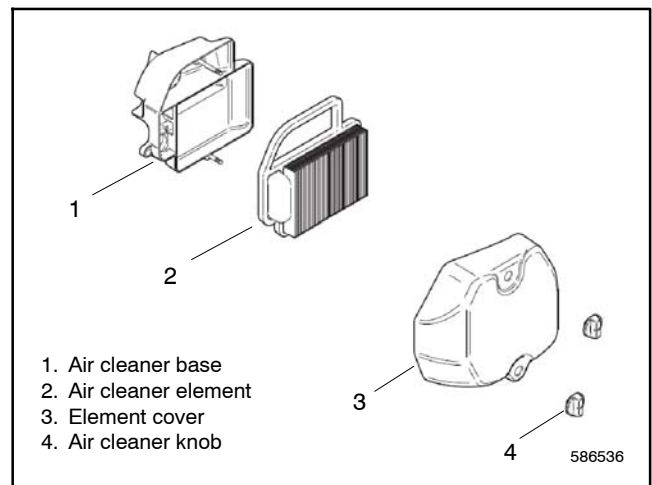
1. Before working on the generator set or connected equipment, disable the generator set as follows:
  - a. Press the OFF button on the generator set controller.
  - b. Disconnect the power to the battery charger.
  - c. Remove the battery cables, negative (-) lead first.
2. Loosen the cover retaining knob and remove the cover.
3. Remove and discard the old air cleaner element and precleaner (if equipped).
4. Install the precleaner over the new air cleaner element.
5. Install the paper element, precleaner, element cover, element cover nut, and the air cleaner cover.
6. Secure the cover with the cover retaining knob.
7. Reconnect the battery cable, negative (-) lead last.



**Figure 5** Air Cleaner; 6VSG, 8.5RES, 12RES(L), 14RES(A)(AL)(L)

### 8RESV(L)

1. Before working on the generator set or connected equipment, disable the generator set as follows:
  - a. Press the OFF button on the generator set controller.
  - b. Disconnect the power to the battery charger.
  - c. Remove the battery cables, negative (-) lead first.
2. Loosen the cover retaining knobs and remove the cover.
3. Remove and discard the old air cleaner element.
4. Install the paper element and the air cleaner cover. Secure the cover with the cover retaining knobs.
5. Reconnect the battery cable, negative (-) lead last.

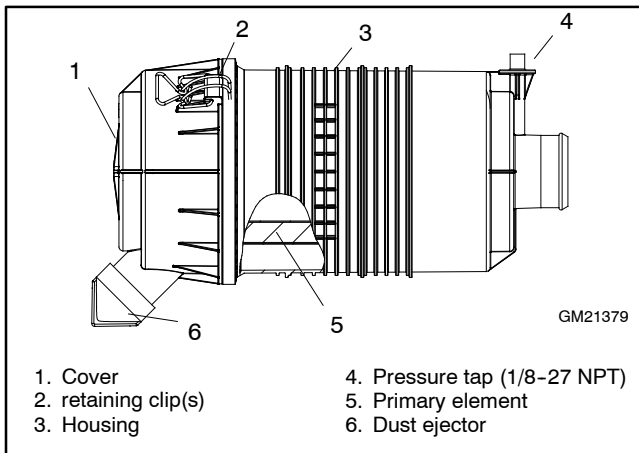


**Figure 6** Air Cleaner; 8RESV(L)



## 15RES(A)/R(E)YG and 30RES(A)/R(E)YG

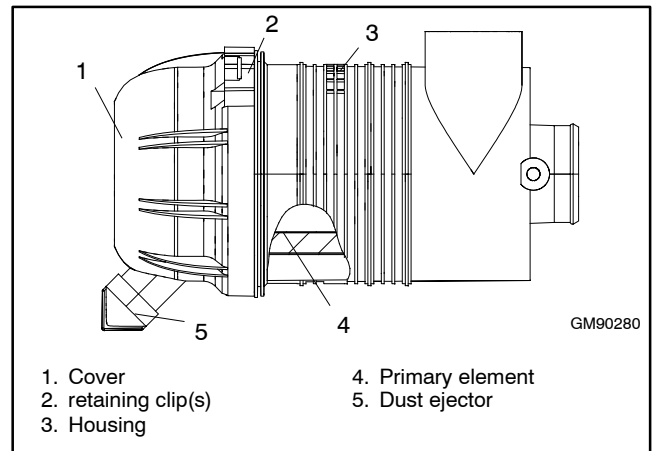
1. Before working on the generator set or connected equipment, disable the generator set as follows:
  - a. Press the OFF button on the generator set controller.
  - b. Disconnect the power to the battery charger.
  - c. Remove the battery cables, negative (-) lead first.
2. Release the retaining clips to open the housing and then remove the air cleaner element.
3. Remove and discard the old air cleaner element.
4. Install the new element.
5. Wipe the cover and housing with a clean rag. Make sure the sealing surfaces fit correctly and reattach the retaining clips.
6. Reconnect the battery cable, negative (-) lead last.



**Figure 9** Air Cleaner; 15RES(A)/R(E)YG, and 30RES(A)/R(E)YG

## 24RCL, 30RCL, 38RCLB, 48RCLA, and 60RCL

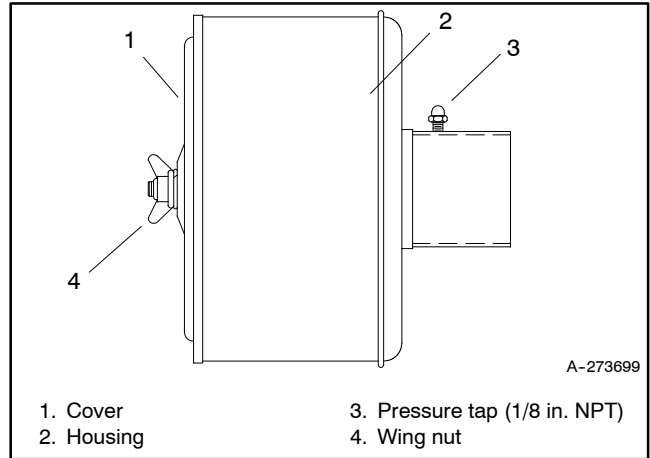
1. Before working on the generator set or connected equipment, disable the generator set as follows:
  - a. Press the OFF button on the generator set controller.
  - b. Disconnect the power to the battery charger.
  - c. Remove the battery cables, negative (-) lead first.
2. Release the retaining clips to open the housing and then remove the air cleaner element.
3. Remove and discard the old air cleaner element.
4. Install the new element.
5. Wipe the cover and housing with a clean rag. Make sure the sealing surfaces fit correctly and reattach the retaining clips.
6. Reconnect the negative battery cable and spark plug lead(s).



**Figure 10** Air Cleaner; 24/30/60RCL, 48RCLA, and 38RCLB

### 38/48RCL

1. Before working on the generator set or connected equipment, disable the generator set as follows:
  - a. Press the OFF button on the generator set controller.
  - b. Disconnect the power to the battery charger.
  - c. Remove the battery cables, negative (-) lead first.
2. Remove the wing nut and remove the air cleaner retaining plate.
3. Remove and discard the old air cleaner element.
4. Install the new element.
5. Wipe the cover and housing with a clean rag. Reinstall the retaining plate and secure with the wing nut.
6. Reconnect the battery cable, negative (-) lead last.



**Figure 11** Air Cleaner; 38/48RCL

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