

## INSTALLATION INSTRUCTIONS

Original Issue Date: 5/09

Model: 30RESA, 30REYG, 30RES, 30RYG, and RGEN30

Market: Residential/Commercial

Subject: Oil Makeup Kits GM65412 -KP2, GM65412-KP3, and GM89287-S

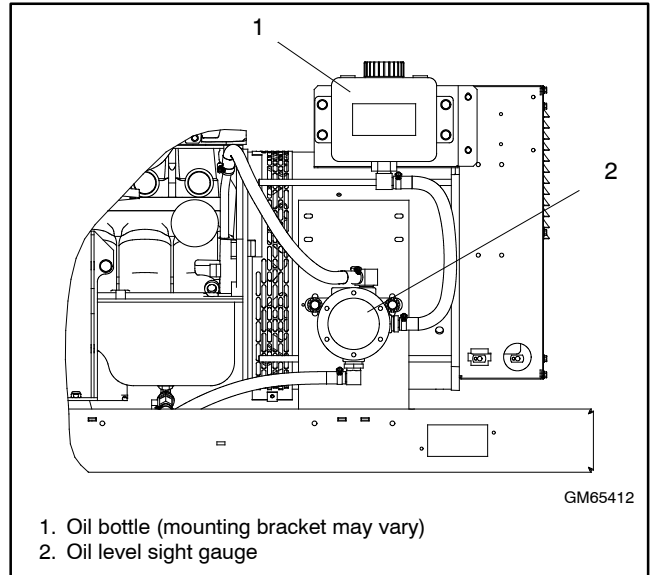
### Introduction

The oil makeup kit increases the engine oil capacity on 30 kW residential/commercial generator sets. The kit includes a 1.9-liter (2-quart) oil reservoir and a large sight gauge for easy viewing of the oil level. The kit is designed to fit inside the enclosure on the generator set models listed above.

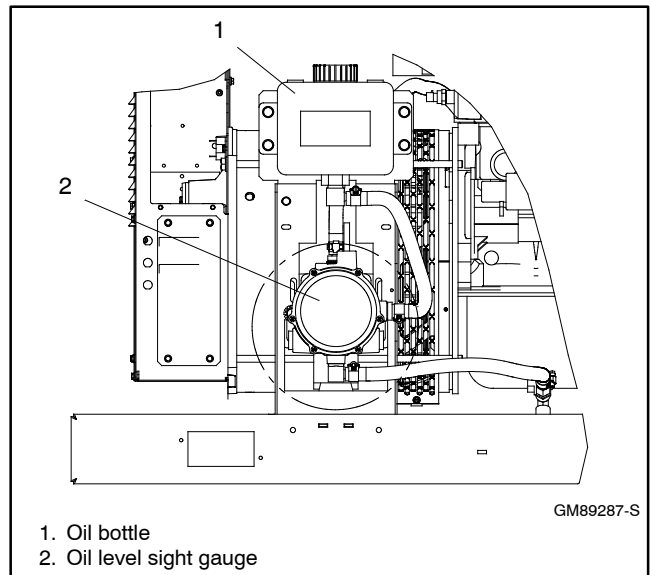
See Figure 1 and Figure 2 for illustrations of the installed oil makeup kits.

**Note:** Service kit GM89287-S replaces kits GM65412-KA2, -KA3, -KP2, and -KP3. The new service kit mounts on the opposite side of the generator set and requires the installer to drill and tap two holes in the skid. Instructions to install service kit GM89287-S begin on page 7.

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.



**Figure 1** Installed Oil Makeup Kit GM65412-KA2, -KA3, -KP2, or -KP3

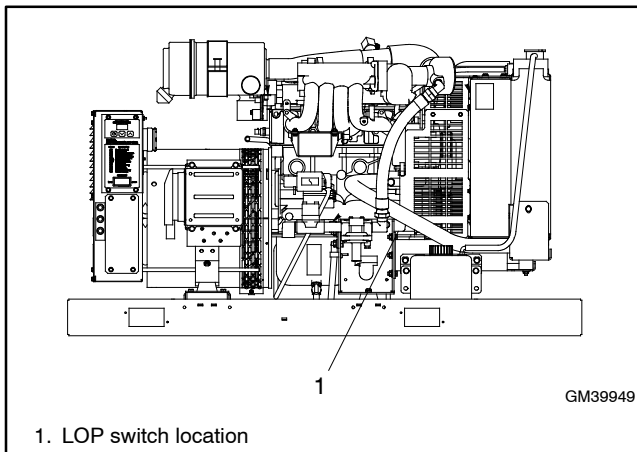


**Figure 2** Installed Service Kit GM89287-S

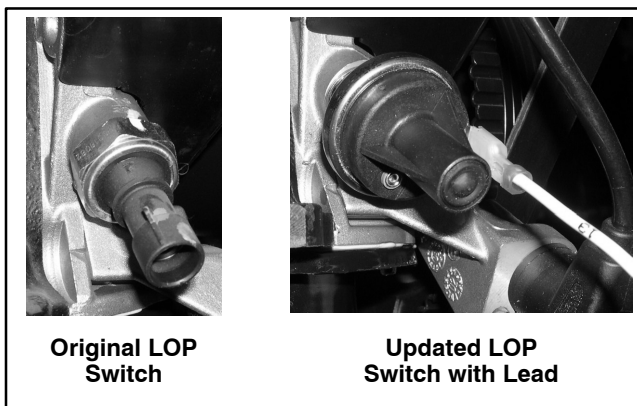
## Models 30RES, 30REYG, and RGEN30 Only:

**Note:** This section applies to generator sets with serial numbers below 2243791 or build dates before February 16, 2009.

Verify that the updated low oil pressure (LOP) switch shown in Figure 4 is installed on the generator set before installing the oil makeup kit. Locate the LOP switch (see Figure 3) and compare it to Figure 4. If the updated LOP switch shown on the right is not installed, obtain service kit GM69950 and replace the switch before installing the oil makeup kit. See Service Bulletin SB-690, provided with kit GM69950, for LOP switch replacement instructions.



**Figure 3** LOP Switch Location



**Figure 4** Low Oil Pressure Switch Comparison

## Safety Precautions

Observe the following safety precautions while installing the kit.

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### ⚠ 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.

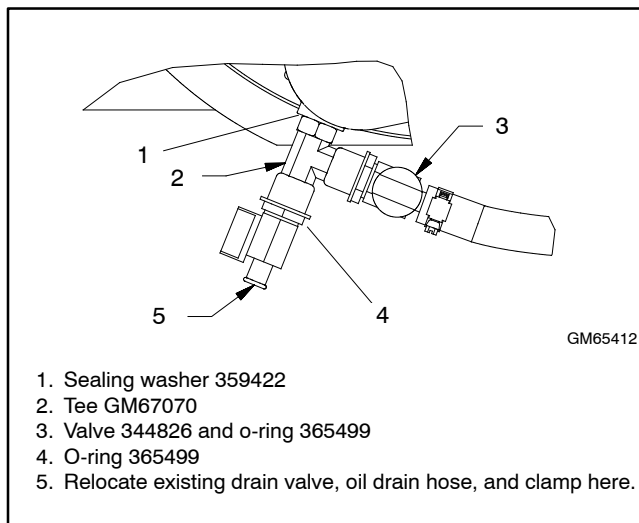
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**Disabling the generator set. Accidental starting can cause severe injury or death.** Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) 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.

## Installation Procedure, Kit GM65412-KP2 and -KP3

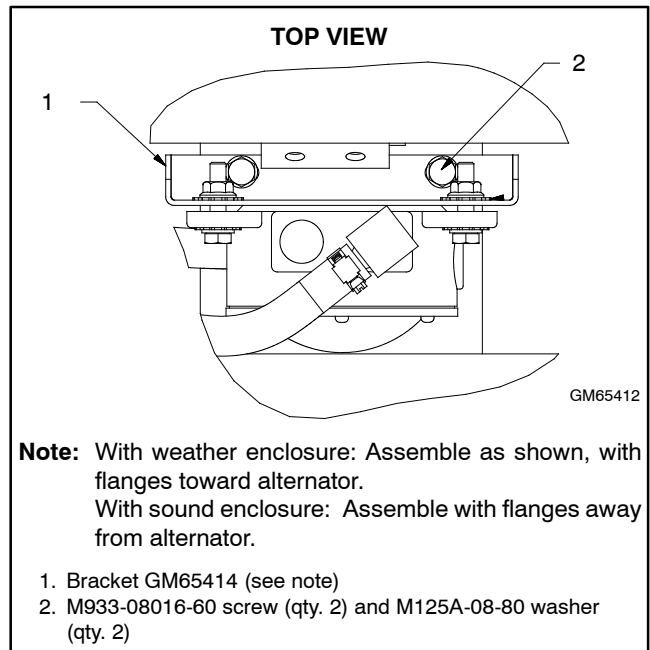
**Note:** For instructions to install service kit GM89287-S, go to page 7.

1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the battery, negative (-) lead first.
4. Drain the oil from the generator set engine into a suitable container.
5. Remove the existing drain valve and drain hose from the bottom of the oil pan. Save the drain valve, hose, and clamp; they will be reused.
6. Install the new tee and valve assembly shown in Figure 5 as follows:
  - a. Install tee GM67070 with sealing washer 359422 into the drain hole in the oil pan.
  - b. Reinstall the drain valve using o-ring 365499. Install the drain hose and clamp that were removed in step 5.
  - c. Install valve 344826 with o-ring 365499. Close both valves.



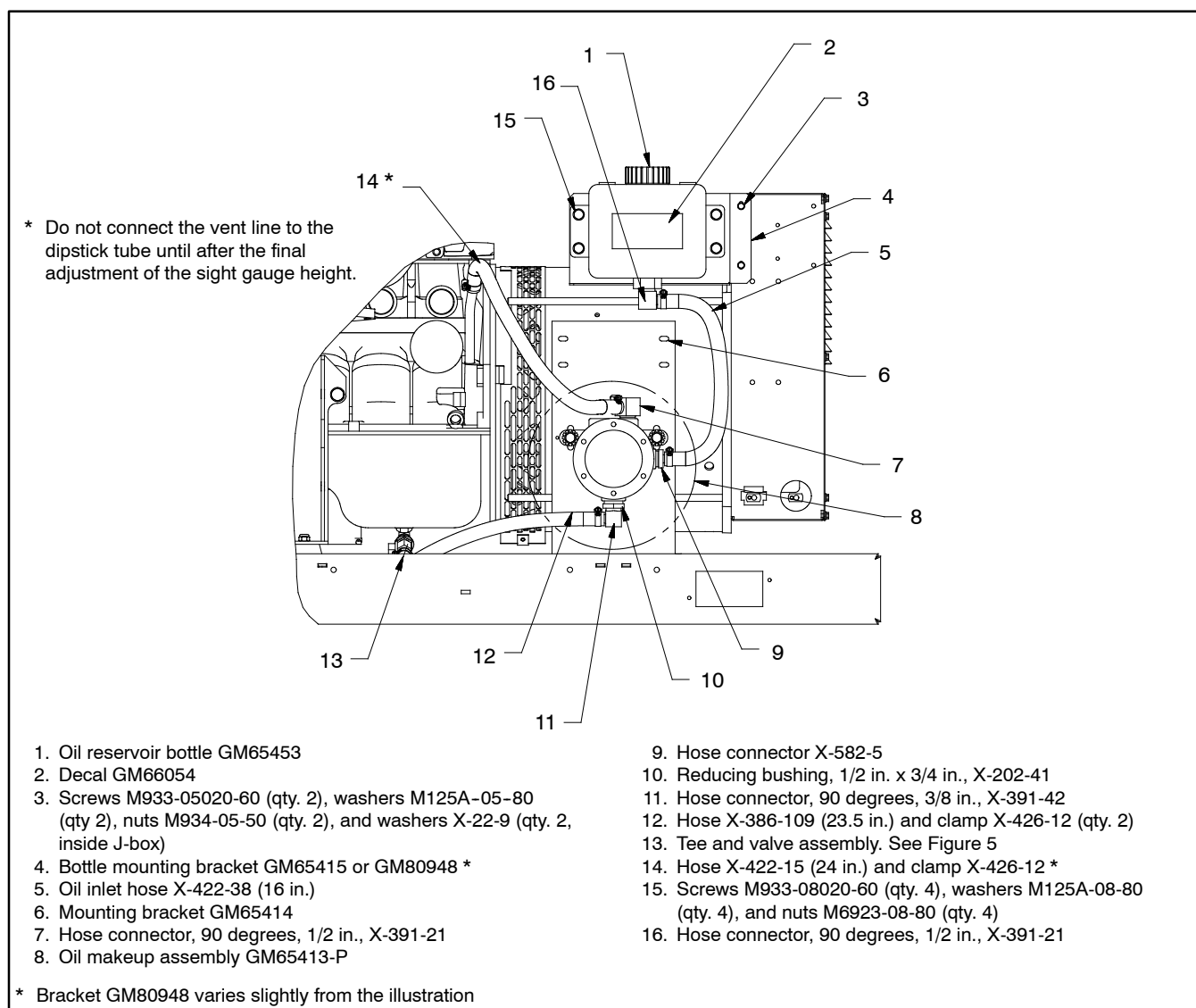
**Figure 5** Oil Drain Valve and Tee Assembly

7. Remove the battery charger and mounting bracket from the generator set, if equipped.
8. Install oil level mounting bracket GM65414 using the mounting holes with weld nuts that were used for the battery charger mounting bracket. Note the different orientation of the bracket with the sound enclosure or weather enclosure indicated in Figure 6. Use two M933-08016-60 screws and two M125A-08-80 washers to attach the bracket to the skid as shown in Figure 6.

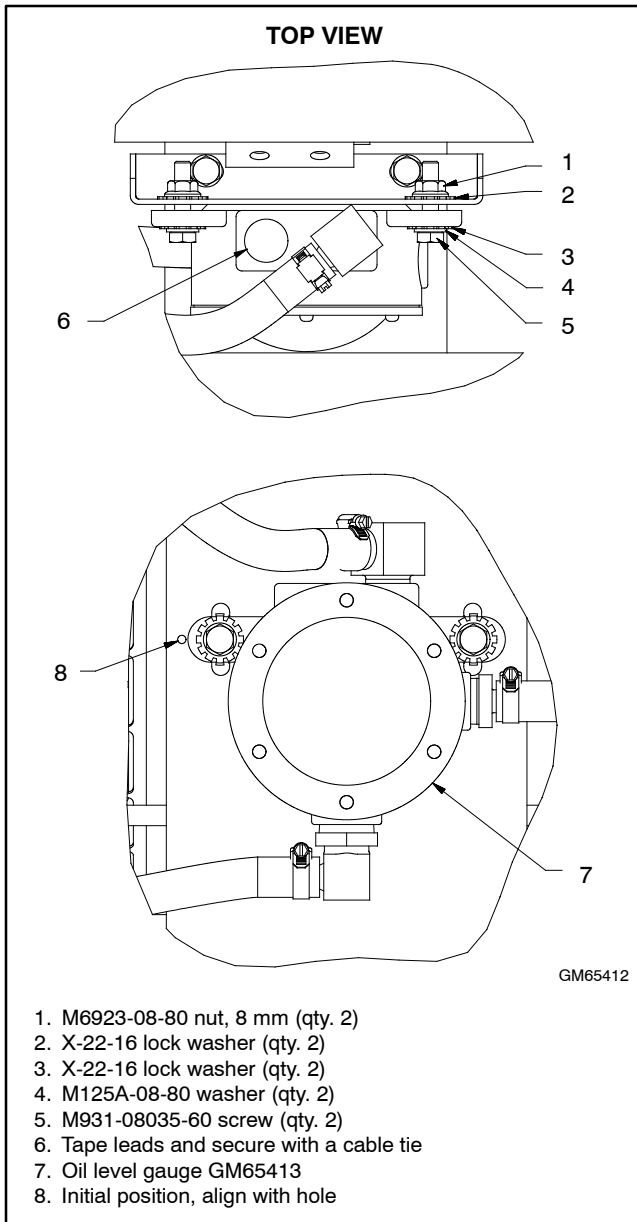


**Figure 6** Oil Level Bracket Mounting

9. Assemble the following fittings onto oil level gauge assembly GM65413-P. See Figure 7.
- 90 degree connector X-391-21
  - Hose connector X-582-5
  - 90 degree connector X-391-42 with reducing bushing X-202-41
10. Mount the oil level gauge assembly, GM65413-P, onto the bracket as follows. See Figure 8.
- a. Use two M931-08035-60 screws, four X-22-16 lock washers, two M125A-08-80 washers, and two M6923-08-80 nuts to attach the oil level gauge assembly to the bracket. Do not tighten the screws.
  - b. Set the initial height of the assembly so that the center of the mounting screw lines up with the small hole on the mounting bracket and the sight glass is level. See Figure 8. Do not final tighten the mounting screws until the height adjustment procedure in step 22.
  - c. Tape the leads from the oil gauge and secure with a cable tie.
11. Relocate the battery charger, if equipped, onto new bracket GM65414. Use existing fasteners.

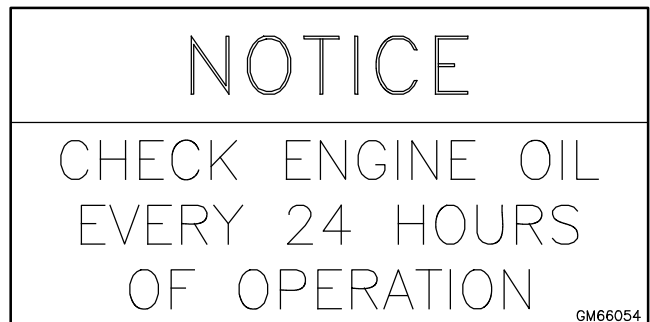


**Figure 7** Oil Makeup Kit GM65412-KP2 and -KP3 Components



**Figure 8** Oil Level Gauge GM65413 Mounting

12. Install 90 degree connector X-391-21 into the bottom of oil bottle GM65453. See Figure 7.
13. Install mounting bracket GM65415 or GM80948 and oil bottle GM65453 as follows. See Figure 7.
  - a. Remove the junction box end panel to gain access to the inside of the junction box.
  - b. Use two M933-05020-60 screws, two M125A-05-80 washers, two M934-05-50 nuts, and two X-22-9 lock washers to attach mounting bracket GM65415 or GM80948 to the generator set junction box.
  - c. Use four M933-08020-60 screws, four M125A-08-80 washers, and four M6293-08-80 nuts to mount oil bottle GM65453 onto the bracket.
14. Connect the following hoses. Use hose clamps X-426-12 to secure both ends of each hose. See Figure 7.
  - a. Connect 406 mm (16 in.) long, 1/2 inch diameter hose X-422-38 from the bottom of the oil bottle to the gauge inlet.
  - b. Connect 597 mm (23.5 in.) long, 3/8 in. diameter hose X-386-109 from the oil pan to the outlet connection at the bottom of the gauge assembly.
  - c. Connect 610 mm (24 in.) long, 1/2 inch diameter hose X-422-15 to the vent connection at the top of the gauge assembly. Do not connect the other end of the hose at this time.
15. Affix decal GM66054 to the oil bottle. See Figure 7 and Figure 9.



**Figure 9** Decal GM66054

16. Verify that the valve to the oil makeup kit is closed. Add 3.5 L (3.7 qts.) of oil to the engine.
17. Reconnect the battery. Start and run the generator set for a few minutes to distribute the oil, then use the dipstick to check the oil level. Add more oil if necessary to bring the oil level up to the full line on the dipstick.  
  
**Note:** There is no oil in the sight gauge or oil reservoir at this time.
18. Stop the generator set.
19. Open the valve between the oil pan and the oil level gauge. Wait for oil to flow into the sight gauge.
20. Remove the dipstick from the engine and attach the oil level gauge vent hose to the dipstick tube using clamp X-426-12. Store the dipstick in a convenient location.
21. Start the generator set.
22. Adjust the height of the oil level gauge so that the oil level falls between the green lines on the sight glass while the generator set is running. Tighten the oil level gauge mounting screws.
23. Stop the generator set.  
  
**Note:** The oil level shown on the sight glass may appear high when the genset is not running. This is normal.
24. Add about 1.9 liters (2 quarts) of oil to the oil bottle and replace the cap.
25. Check that the generator set master switch is in the OFF position.
26. Reconnect power to the battery charger, if equipped.
27. Start and run the generator set for a few minutes. Confirm that the oil level is at the white line on the sight glass while the generator set is running.

## Installation Procedure, Kit GM89287-S

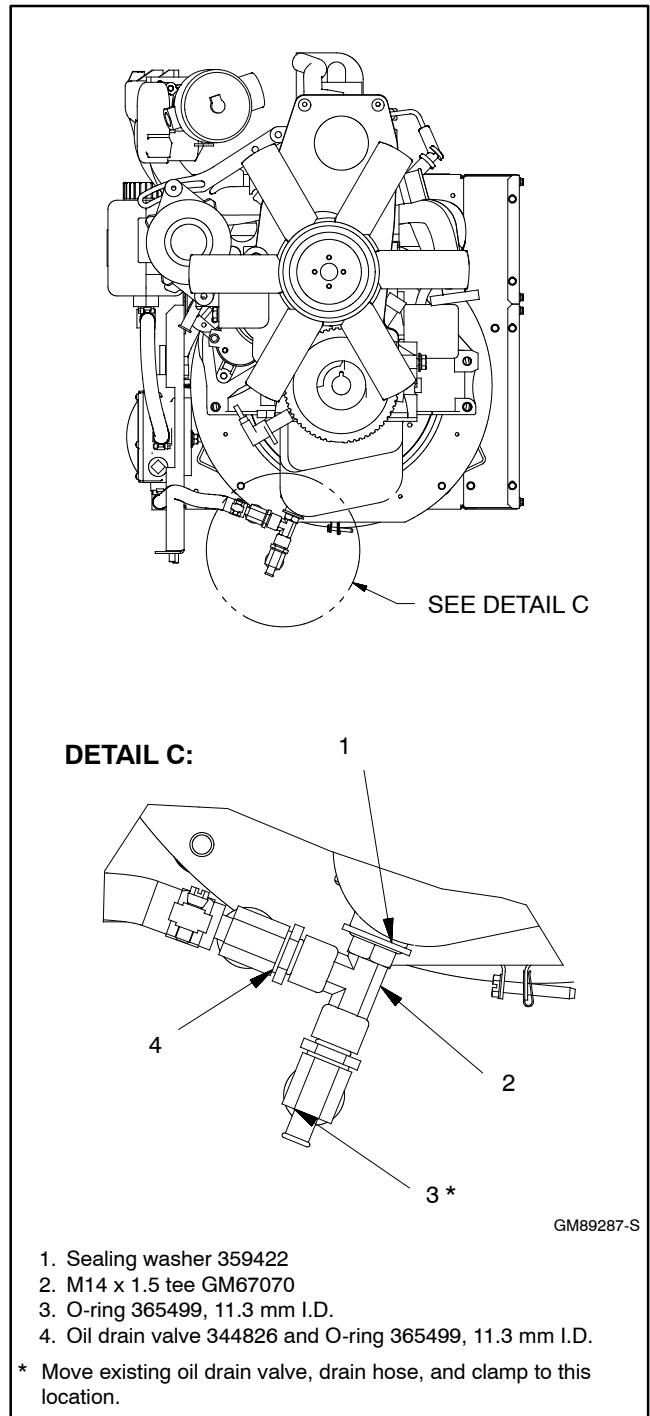
**Note:** Kit GM89287-S must be installed on the opposite side of the skid from the original kits GM65412-KA2 and -KP2. Follow the instructions in this section to install service kit GM89287-S. Refer to Figure 11 when necessary throughout this procedure.

**Note:** This procedure requires drilling and tapping two holes for M933-08016-60 screws into the generator skid.

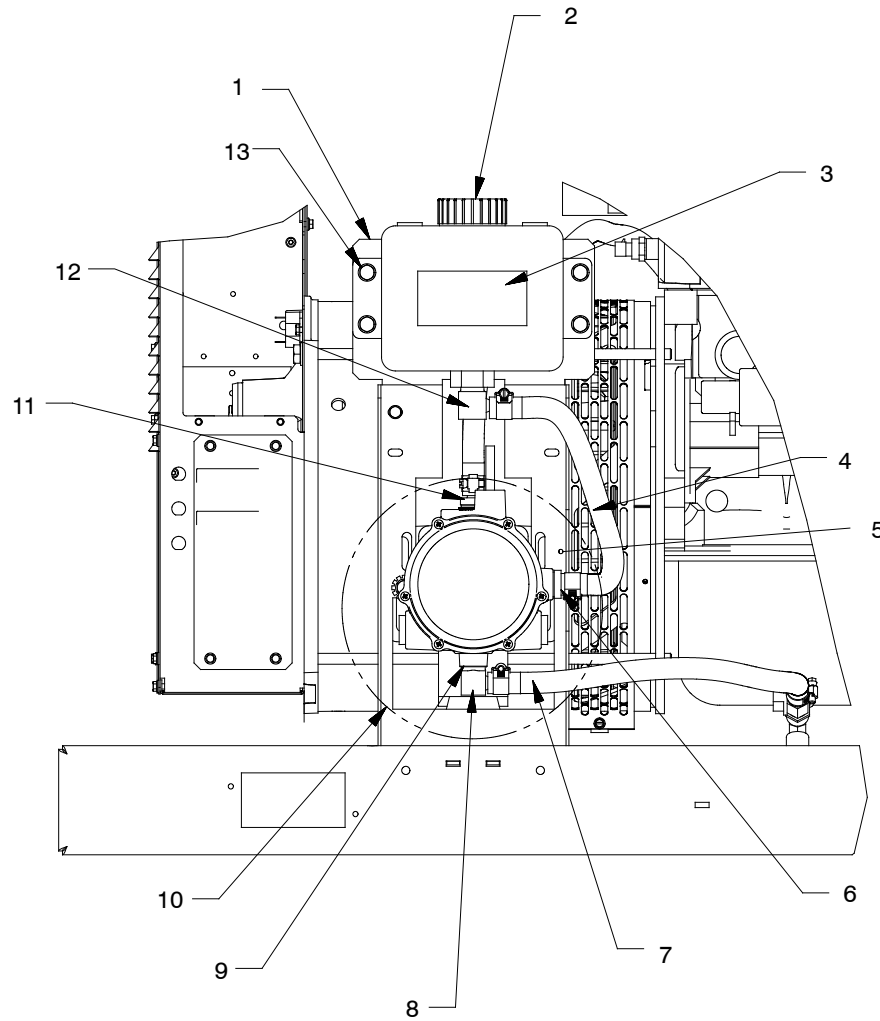
1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the battery, negative (-) lead first.
4. Drain the oil from the generator set engine into a suitable container.
5. If an oil makeup kit is being replaced, remove the existing oil makeup kit from the generator set.

**Note:** The battery charger, if equipped, remains mounted on existing bracket GM65414.

6. If there was no oil makeup kit installed on the unit, remove the existing drain valve and drain hose from the bottom of the oil pan. See Figure 10. Save the drain valve, hose, and clamp; they will be reused.
7. If the unit is already equipped with a drain valve and tee assembly for an oil makeup kit, it can be reused if it is not damaged or leaking. Otherwise, install the new tee and valve assembly shown in Figure 10 as follows:
  - a. Install tee GM67070 with sealing washer 359422 into the drain hole in the oil pan.
  - b. Reinstall the drain valve using o-ring 365499. Install the drain hose and clamp that were removed in step 5.
  - c. Install valve 344826 with O-ring 365499. Close both valves.



**Figure 10** Oil Drain Valve and Tee Assembly



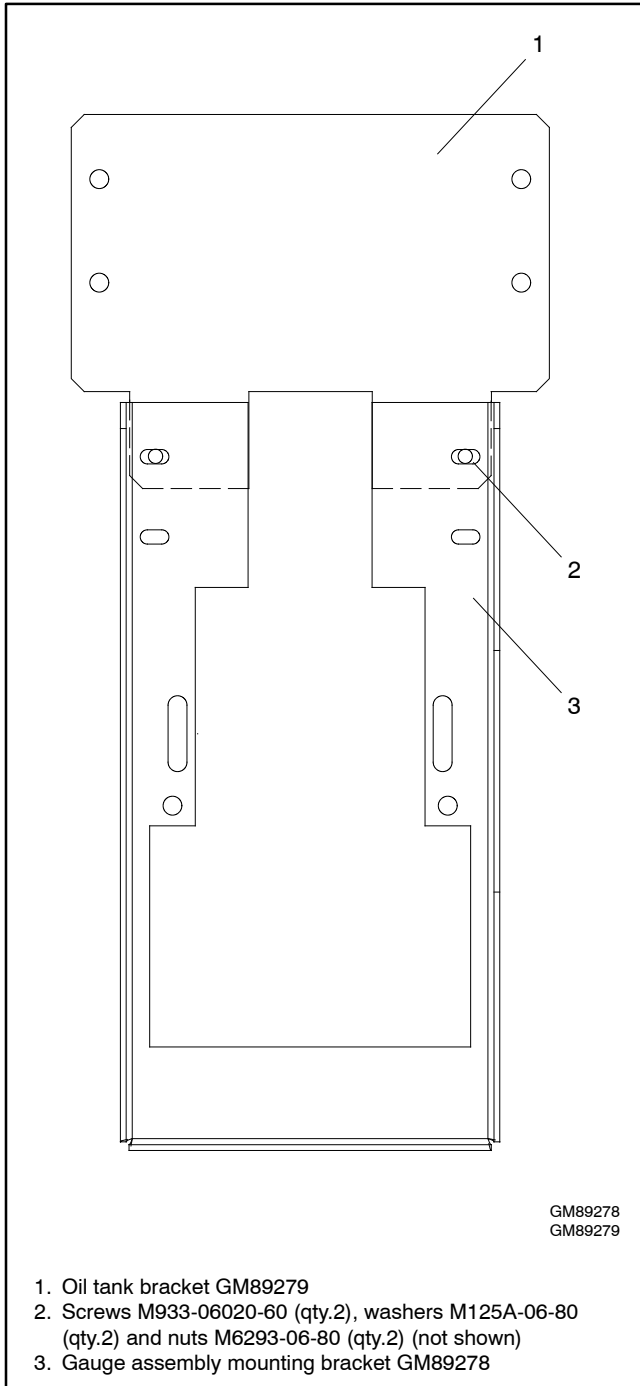
GM89287

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|---|---|
| <ul style="list-style-type: none"> <li>1. Oil tank bracket GM89279</li> <li>2. Oil bottle GM65453</li> <li>3. Decal GM66054, check oil</li> <li>4. Hose X-422-38 and clamps X-426-12 (qty. 2)</li> <li>5. Initial alignment position (hole)</li> <li>6. Hose connector X-582-5</li> <li>7. Hose X-386-109 and clamps X-426-12 (qty. 2)</li> </ul> | <ul style="list-style-type: none"> <li>8. 90 degree hose connector, 3/8 in. I.D. hose, X-391-42</li> <li>9. reducing bushing, (1/2 x 3/4 in. NPT) X-202-41</li> <li>10. See Figure 10 for detail</li> <li>11. Hose connector X-582-5</li> <li>12. 90 degree hose connector, 1/2 in. I.D. hose, X-391-21</li> <li>13. Screw M933-08020-60 (qty. 4), washer M125A-08-80 (qty. 8), and nut M6293-08-80 (qty. 4)</li> </ul> |
|---|---|

**Figure 11** Oil Makeup Kit GM89287-S Components



8. Use two screws M933-06020-60, two washers M125A-06-80, and two nuts M6293-06-80 to attach oil tank mounting bracket GM89279 to gauge assembly mounting bracket GM89278. See Figure 12.



**Figure 12** Bracket Assembly

9. Assemble the following fittings onto oil level gauge assembly GM86615. See Figure 11.

- Hose connector X-582-5 (qty. 2)
- 90 degree connector X-391-42 with reducing bushing X-202-41

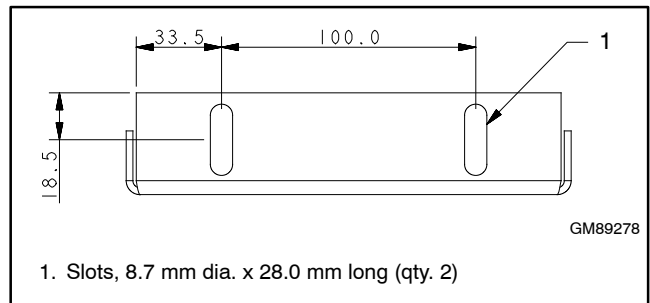
10. Mount the oil level gauge assembly GM86615 onto bracket GM89278 as follows. See Figure 15.

- a. Use two M931-08035-60 screws, four X-22-16 lock washers, two M125A-08-80 washers, and two M6923-08-80 nuts to attach the oil level gauge assembly to the bracket. Do not tighten the screws.

- b. Tape the leads from the oil gauge and secure with a cable tie.

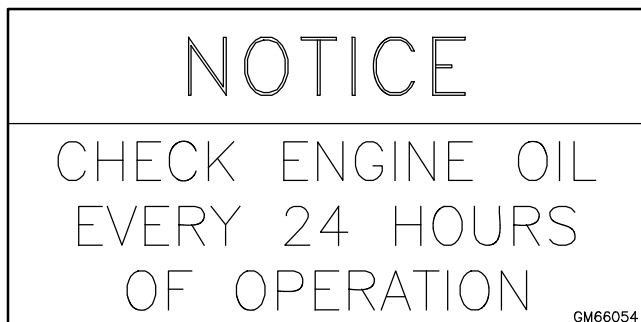
11. Hold the new oil gauge assembly in place as far back from the edge of the skid as possible. Mark two hole locations on the skid for mounting the bracket. The mounting hole locations in the base of the bracket are shown in Figure 13.

12. Drill and tap two 8 mm holes for M933-08016-60 screws into the skid cross-member.

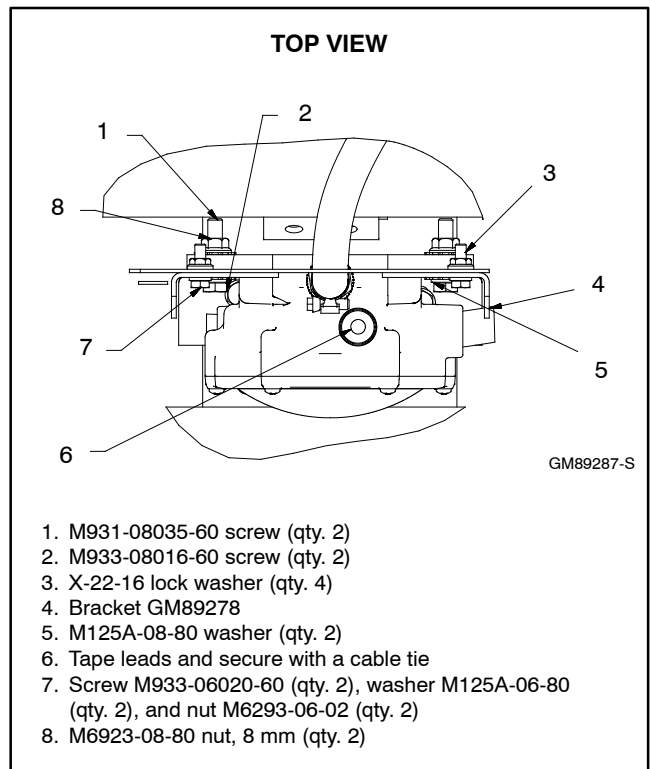


**Figure 13** Bracket GM89278 Mounting Holes

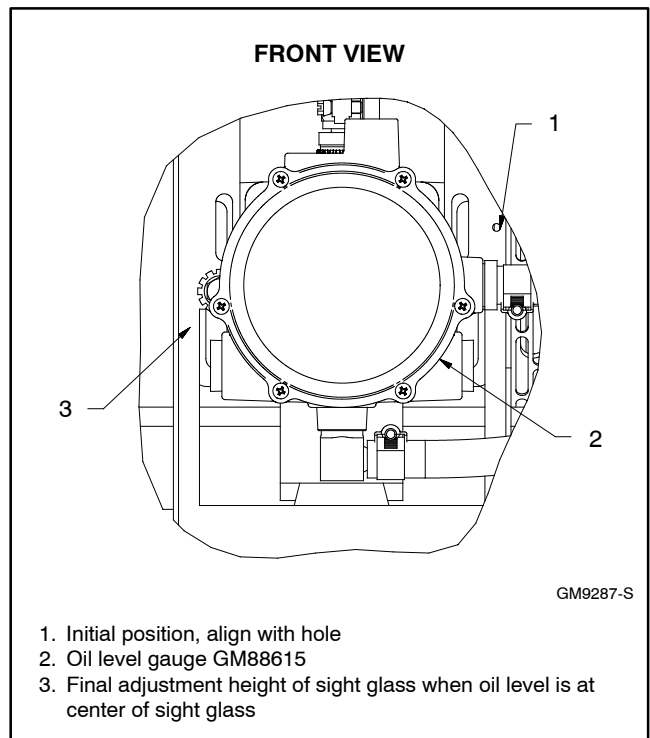
13. Attach oil level mounting bracket GM89278 to the skid. Use two M933-08016-60 screws and two M125A-08-80 washers through the slots in the base of the bracket. See Figure 15.
14. Set the initial height of the assembly so that the center of the mounting screw lines up with the small hole on the mounting bracket and the sight glass is level. See Figure 16. Do not final tighten the mounting screws until the height adjustment procedure in step 22.
15. Install 90 degree connector X-391-21 into the bottom of oil bottle GM65453.
16. Use four M933-08020-60 screws, four M125A-08-80 washers, and four M6293-08-80 nuts to mount oil bottle GM65453 onto the mounting bracket GM89279. See Figure 11.
17. Connect the following hoses. Use hose clamps X-426-12 to secure both ends of each hose. See Figure 11.
  - a. Connect 406 mm (16 in.) long, 1/2 inch diameter hose X-422-38 from the bottom of the oil bottle to the gauge inlet.
  - b. Connect 597 mm (23.5 in.) long, 3/8 in. diameter hose X-386-109 from the oil pan to the outlet connection at the bottom of the gauge assembly.
  - c. Connect 762 mm (30 in.) long, 1/2 inch diameter hose X-422-35 to the vent connection at the top of the gauge assembly. Route the hose through the opening in the mounting bracket. Do not connect the other end of the hose at this time.
18. Affix decal GM66054 to the oil bottle. See Figure 14.



**Figure 14** Decal GM66054



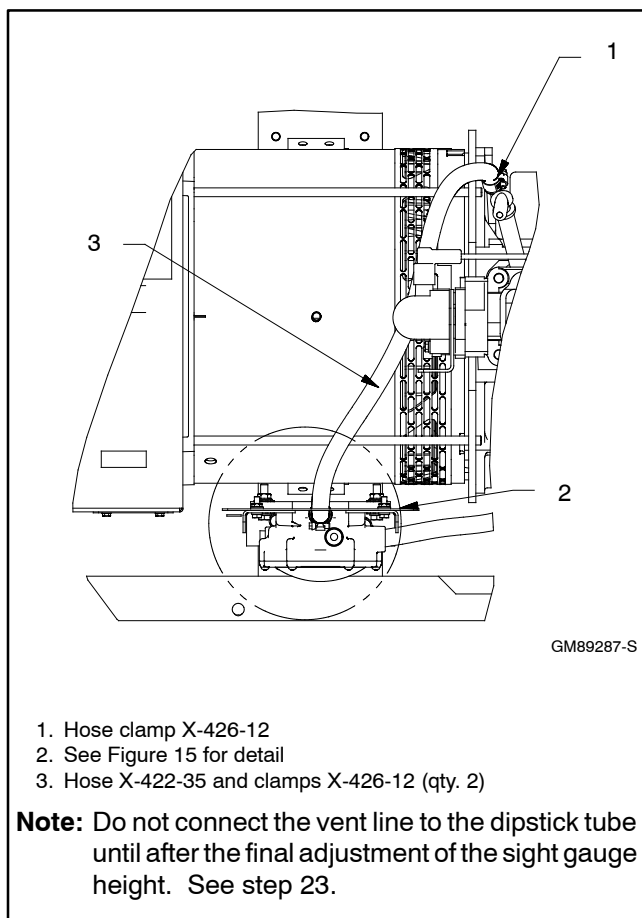
**Figure 15** Oil Level Gauge and Bracket Mounting, Top View



**Figure 16** Oil Level Gauge GM88615 Mounting, Front View

19. Verify that the valve to the oil makeup kit is closed. Add 3.5 L (3.7 qts.) of oil to the engine.
20. Reconnect the battery. Start and run the generator set for a few minutes to distribute the oil, then use the dipstick to check the oil level. Add more oil if necessary to bring the oil level up to the full line on the dipstick.
 

**Note:** There is no oil in the sight gauge or oil reservoir at this time.
21. Stop the generator set.
22. Open the valve between the oil pan and the oil level gauge. Wait for oil to flow into the sight gauge.
23. Remove the dipstick from the engine and attach the oil level gauge vent hose to the dipstick tube using clamp X-426-12. See Figure 17. Store the dipstick in a convenient location.



**Figure 17** Top View, Hose Connection to Dipstick Tube (oil bottle not shown)

24. Start the generator set.
25. Adjust the height of the oil level gauge so that the oil level falls between the green lines on the sight glass while the generator set is running. Tighten the oil level gauge mounting screws.
26. Stop the generator set.
 

**Note:** The oil level shown on the sight glass may appear high when the genset is not running. This is normal.
27. Add about 2 quarts (1.9 liters) of oil to the oil bottle and replace the cap.
28. Check that the generator set master switch is in the OFF position.
29. Reconnect power to the battery charger, if equipped.
30. Start and run the generator set for a few minutes. Confirm that the oil level is at the white line on the sight glass while the generator set is running.

## Kit Operation

Check the oil level shown in the sight glass while the engine is running without load. As the load on the engine increases, the oil level in the sight glass may drop below the line.

The oil level shown in the sight glass may appear high when the engine is stopped. This is normal, as some of the engine oil flows down into the oil pan when the engine is not running. A check valve prevents excess oil from the oil reservoir from flowing into the engine.

Check the oil level regularly by viewing the level shown on the gauge and through the sides of the oil reservoir. Replenish the oil supply by adding oil to the makeup kit reservoir.

**Note:** The oil reservoir bottle looks similar to the coolant bottle. Be sure to add oil only to the oil reservoir.

Continue to check the oil level regularly as instructed in the generator set Operation Manual, and add oil as needed. During extended generator set operation (for example, during an extended power outage due to a storm), check the oil level every 24 hours.

## Parts Lists

### Oil Makeup Kit

Kit: GM65412-KP2 and -KP3		
Qty.	Description	Part Number
1	Valve, oil drain (M14 x 1.50)	344826
1	Washer, sealing (30.1 mm OD)	359422
2	O-ring, ISO 6149 (11.3 mm ID)	365499
1	Gauge, oil level	GM65413-P
1	Bracket, oil level	GM65414
1	Bracket, oil tank (kit -KP2)	GM65415
1	Bracket, oil tank (kit -KP3)	GM80948
1	Bottle, oil	GM65453
1	Decal, check oil	GM66054
1	Tee, run (M14 x 1.5)	GM67070
2	Washer, plain	M125A-05-80
8	Washer, plain 8.4 ID x 16.0 OD	M125A-08-80
6	Nut, Hex 8mm	M6923-08-80
2	Screw, hex cap	M931-08035-60
2	Screw, hex cap	M933-05020-60
2	Screw, hex cap	M933-08016-60
4	Screw, hex cap	M933-08020-60
2	Nut, hex 5mm	M934-05-50
1	TT Oil Makeup	TT-1521
1	Bushing, reducing (1/2 x 3/4" NPT)	X-202-41
4	Washer, lock .326 ID x.883 in. OD	X-22-16
2	Washer, lock .20 ID x.373 in. OD	X-22-9
1	Fuel line, flexible	X-386-109
2	Connector, 90 deg. (1/2" ID hose)	X-391-21
1	Connector, 90 deg. (3/8" ID hose)	X-391-42
1	Fuel line, flexible	X-422-15
1	Line, flexible	X-422-38
6	Clamp, hose, .5/1 in.	X-426-12
1	Connector, hose + Vibra Seal	X-582-5

### Oil Makeup Service Kit

Kit: GM89287-S		
Qty.	Description	Part Number
1	Valve, oil drain (M14 x 1.50)	344826
1	Washer, sealing (30.1 mm OD)	359422
2	O-ring, ISO 6149 (11.3 mm ID)	365499
1	Bottle, oil	GM65453
1	Decal, check oil	GM66054
1	Tee, run (M14 x 1.5)	GM67070
1	Gauge, oil level	GM88615
1	Bracket, oil level	GM89278
1	Bracket, oil tank	GM89279
2	Washer, plain	M125A-05-80
8	Washer, plain 8.4 ID x 16.0 OD	M125A-08-80
2	Washer, plain	M125A-06-80
6	Nut, Hex 8mm	M6923-08-80
2	Nut, hex 6 mm	M6923-06-80
2	Screw, hex cap	M931-08035-60
2	Screw, hex cap	M933-08016-60
4	Screw, hex cap	M933-08020-60
2	Screw, hex cap	M933-06020-60
1	TT Oil Makeup	TT-1521
1	Bushing, reducing (1/2 x 3/4" NPT)	X-202-41
4	Washer, lock .326 ID x.883 in. OD	X-22-16
2	Washer, lock .20 ID x.373 in. OD	X-22-9
1	Fuel line, flexible	X-386-109
1	Connector, 90 deg. (1/2" ID hose)	X-391-21
1	Connector, 90 deg. (3/8" ID hose)	X-391-42
1	Fuel line, flexible	X-422-35
1	Line, flexible	X-422-38
6	Clamp, hose, .5/1 in.	X-426-12
2	Connector, hose + Vibra Seal	X-582-5

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.