

# DETROIT DIESEL



## SERIES 60<sup>®</sup> Service Information

**NUMBER:** 14-60-00 Rev. **S.M. REF.:** 8.2 **ENGINE:** 60 **DATE:** August 2000

**REVISION:** A vertical bar indicates change. Please discard Service Information 14-60-00 dated July plus manual attachment pages and file this in its place.

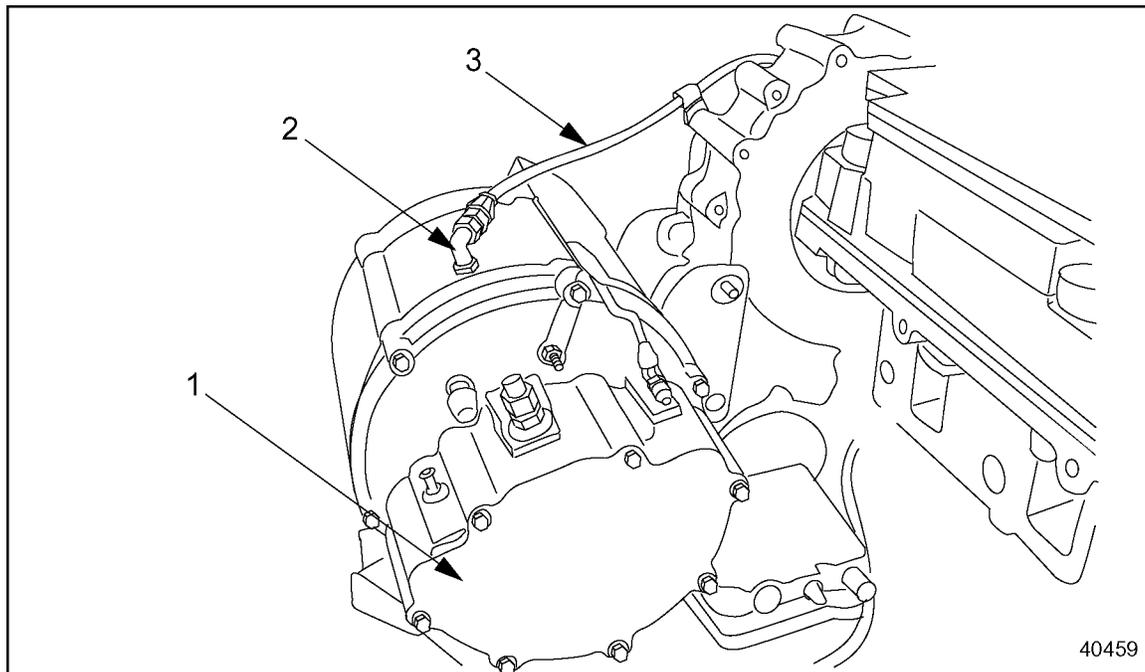
**SUBJECT:** IMPROVED VENT LINE ON 50DN ALTERNATOR

### INTRODUCTION

To provide improved venting of the oil-cooled 50DN alternator on Series 60 engines, a larger diameter vent line is now used. This change took effect in June 2000.

### DETAILS AND REASON

A larger diameter vent line has been released to provide improved venting for the oil-cooled 50DN alternator. The improved venting system uses a No. 6 steel-braided hose in place of the former No. 4 hose. See Figure 1.



1. 50DN Alternator Assembly

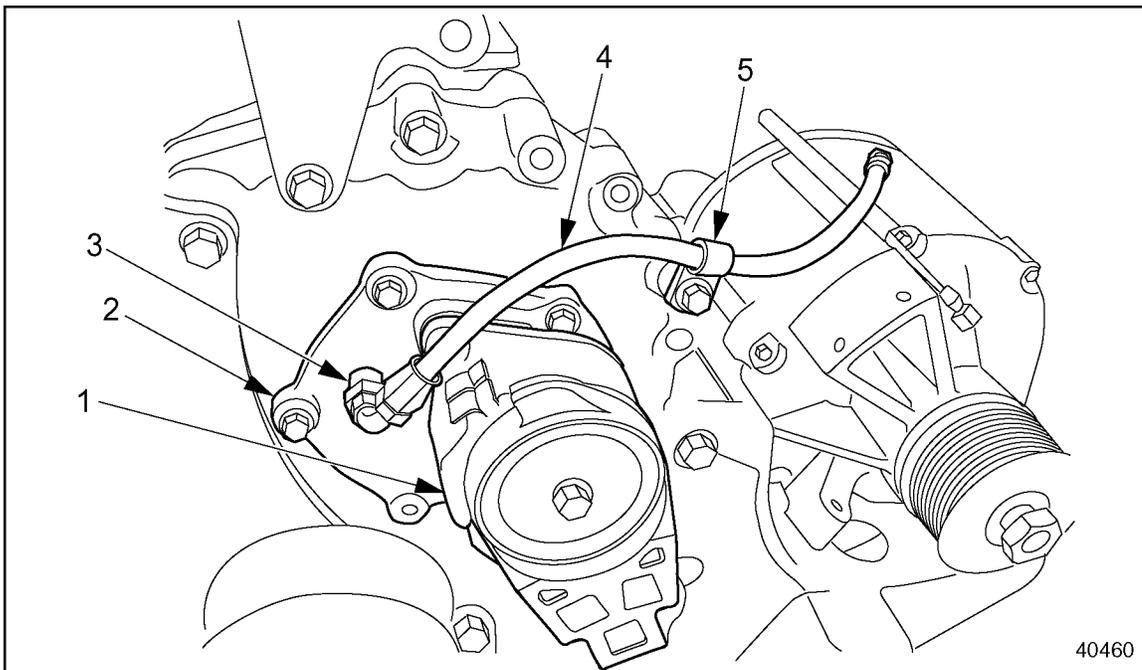
3. Vent Line, Alternator

2. Elbow, 3/8 in. Flare to 1/4 in. NPTF, 90 Degree

**Figure 1 Vent Line Installed in 50DN Alternator**

The larger I.D. of the hose provides improved venting and helps eliminate the potential for vent line plugging. This improvement helps avoid high oil levels in the alternator, which can lead to insufficient cooling of alternator components. The improved line can help extend alternator life.

To conform with this change, a 90 degree, 3/8 in flared elbow is now installed in the 1/4 in. NPTF alternator vent hole. In addition, the engine vent line attachment location has been changed from the back of the gear case to a tapped hole in the drive belt auto-tensioner mounting plate. See Figure 2.



- |  |                          |
|--|--------------------------|
| 1. Auto Tensioner Assembly                             | 4. Vent Line, Alternator |
| 2. Mounting Plate, Auto Tensioner Assembly             | 5. Clip, Hose            |
| 3. Connector, 3/8 in. Flared to 1/4 in. NPTF, Straight |                          |

**Figure 2 Vent Line Installed in Auto Tensioner Mounting Plate**

The parts required for the change to the improved vent line are listed in Table 1. These parts are available in service kit P/N 23528624.

Part Number	Quantity	Description
FAHP0190	1	Hose Asm., No. -6 X 21.40 L. H&P FC186
8929833	1	Connector, 3/8 in. Flared to 1/4 in. NPTF, Straight, Brass
8924998	1	Elbow, 90 Degree, 3/8 in. Flared to 1/4 in. NPTF, Brass
2476234	1	Clip, .500 Dia. Hose, 3/8 in. Bolt Hole
8924380	1	Plug, 1/8 in. NPTF Sq. Skt. Head, Coated
18SP527	1	Installation Instructions

**Table 1 Improved Vent Line Components (Service Kit P/N 23528624)**

### INSTALLATION OF THE IMPROVED VENT LINE

The improved vent line is installed between the alternator case and the drive belt auto-tensioner mounting plate on the gear case cover. Existing Series 60 engines with auto tensioner assemblies and engines with former manual drive belt tensioner assemblies may be modified to accept the improved vent line. Use the following procedures:

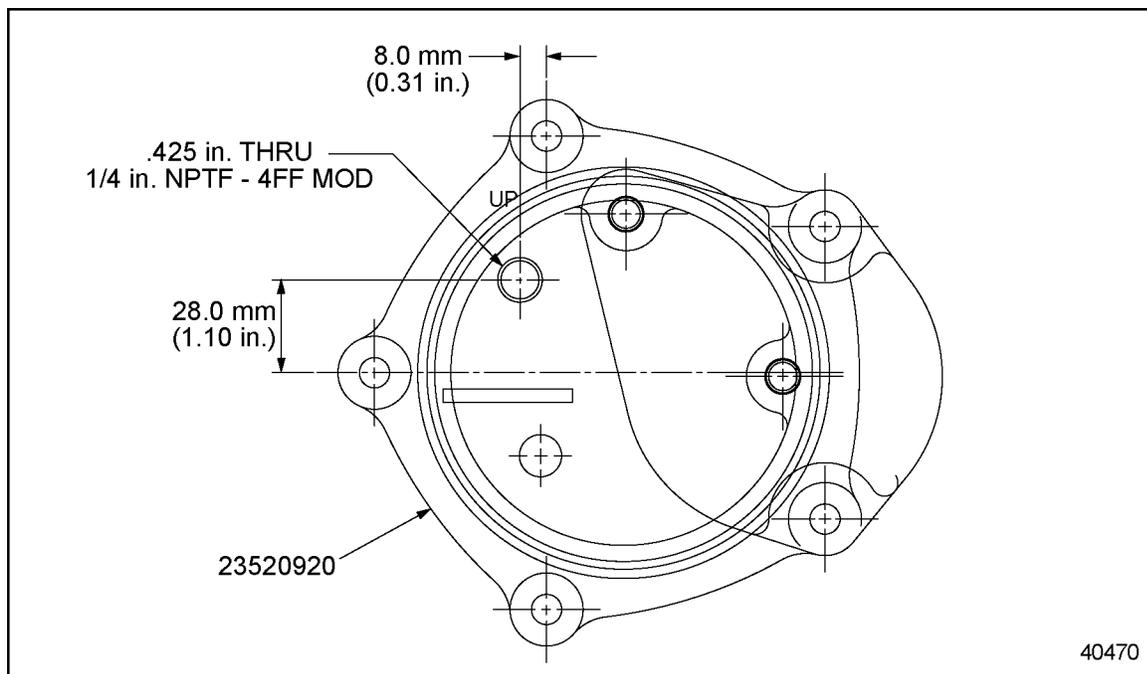
#### *Installation of Vent Line in Drive Belt Auto Tensioner Assembly Mounting Plate*

On engines with current drive belt auto tensioner assemblies, install the improved vent line between the alternator and the tensioner mounting plate as follows:

 <b>CAUTION:</b>
<b>To avoid injury from hot surfaces, allow engine to cool before removing any component.</b>

 <b>CAUTION:</b>
<b>To avoid injury from accidental engine start-up when servicing the engine, disconnect/disable the starting system.</b>

1. With the engine at ambient temperature and cool to the touch, remove and discard the former alternator vent line. Plug the vent line hole at the back of the gear case with a 1/4 in. NPTF square socket head pipe plug.
2. Remove the former vent fitting from the top of the alternator case.
3. Install the 3/8 in. flared to 1/4 in. NPTF, 90 degree elbow into the top of the alternator case.
4. Refer to section 8.2.2 of the *Series 60 Service Manual* and remove the alternator drive belt.
5. Remove the drive belt auto tensioner assembly from the mounting plate on the gear case cover.
6. Remove the mounting plate from the gear case cover.
7. Drill a .425 in. diameter hole on the left side of the mounting plate and thread with a 1/4 in. NPTF - 4FF tap. See Figure 3 for hole location.



**Figure 3 Location of Drilled and Tapped Vent Line Hole in Auto Tensioner Mounting Plate**

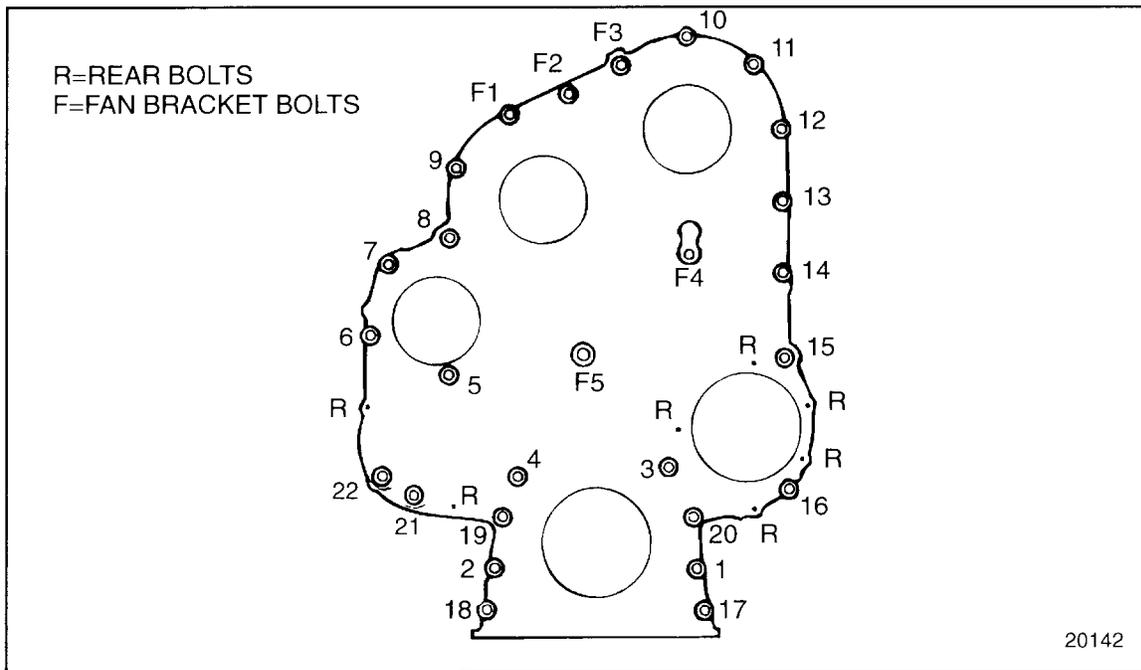
8. Clean the plate carefully to remove all drill chaff.
9. Using a new gasket, install the plate onto the gear case cover. Refer to section 1.10.3.
10. Install the auto tensioner assembly onto the mounting plate.

- Apply DDC®/Loctite® pipe sealant with Teflon® P/N 23509542, or equivalent, to the 3/8 in. flared to 1/4 in. NPTF straight fitting and install into the mounting plate. Attach the improved vent line and tighten securely.

<b>NOTICE:</b>
Do not drill the engine lifter bracket to install a hose clip, since this will weaken the bracket.

<b>NOTICE:</b>
Do not fasten the hose clip to either of the engine lifter bracket mounting bolts. The hose clip <b>must</b> be attached to the bolt on the right side of the lifter bracket to ensure unrestricted air flow through the vent line.

- To prevent sags and low points, secure the vent line with the hose clip. Remove the gear case cover mounting bolt on the right side of the lifter bracket (bolt No. 12 – see Figure 4). Attach the hose clip to the bolt, reinstall, and torque the bolt to 58 –73 N·m (43 – 54 lb·ft).



**Figure 4 Gear Case Cover Mounting Bolt Locations**

- Refer to section 8.2.3 of the service manual and install the alternator drive belt.



**CAUTION:**

**Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**

- Always start and operate an engine in a well ventilated area.**
- If operating an engine in an enclosed area, vent the exhaust to the outside.**
- Do not modify or tamper with the exhaust system or emission control system.**

14. Reconnect starting power, start the engine, and check for proper vent line operation.

### ***Installation of Vent Line in Front Camshaft Cover on Engines with Former Manual Belt Tensioner Assembly***

On engines equipped with the former manual belt tensioner assembly, the front camshaft cover is situated behind the tensioner assembly, requiring its removal. Install the improved vent line on these engines as follows:



**CAUTION:**

**To avoid injury from hot surfaces, allow engine to cool before removing any component.**

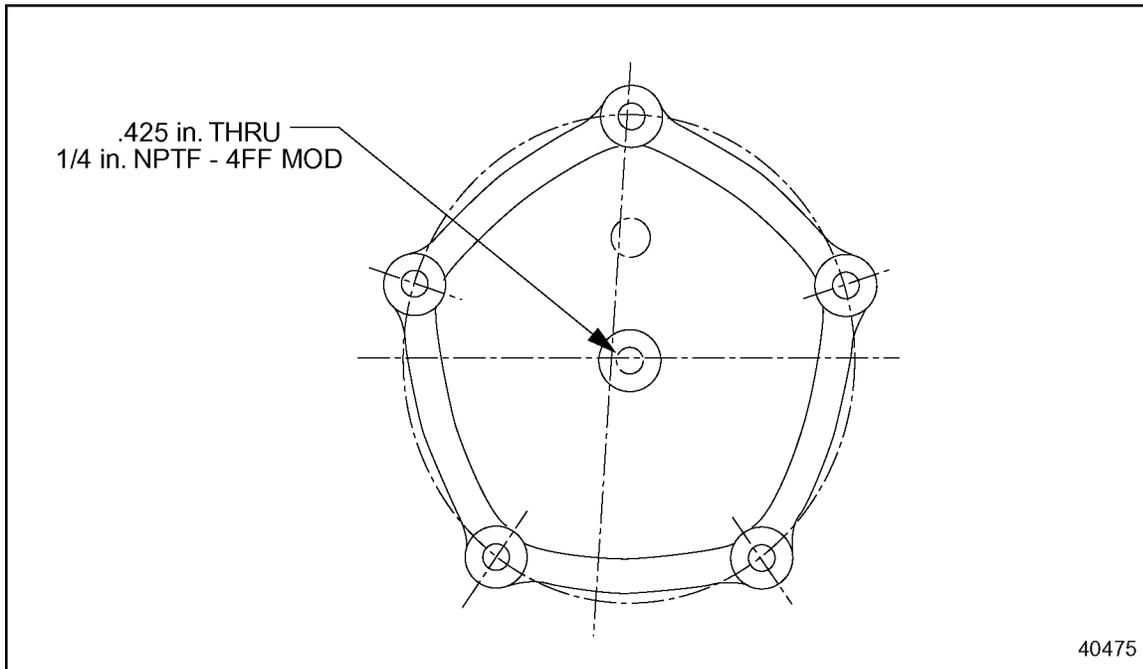


**CAUTION:**

**To avoid injury from accidental engine start-up when servicing the engine, disconnect/disable the starting system.**

1. With the engine at ambient temperature and cool to the touch, remove and discard the former alternator vent line. Plug the vent line hole at the back of the gear case with a 1/4 in. NPTF square socket head pipe plug.
2. Remove the former vent fitting from the top of the alternator case.
3. Install the 3/8 in. flared to 1/4 in. NPTF, 90 degree elbow into the top of the alternator case.
4. Refer to section 8.2.2 of the service manual and remove the alternator drive belt.
5. Remove the manual belt tensioner assembly from the gear case cover.
6. Remove the front camshaft cover from the gear case cover.

7. The center hole in the cover has a 1/8 in. NPTF thread which must be enlarged. Using a .425 in. drill bit, carefully drill out the tapped hole. Thread the hole with a 1/4 in. NPTF - 4FF tap. See Figure 5.



**Figure 5 Drilled and Tapped Vent Line Hole in Front Camshaft Cover**

8. Clean the cover carefully to remove all drill chaff.
9. Using a new gasket, install the front camshaft cover onto the gear case cover. Refer to section 1.10.3.
10. Apply DDC/Loctite pipe sealant with Teflon P/N 23509542, or equivalent, to the 3/8 in. flared to 1/4 in. NPTF straight fitting and install into the cover. Attach the improved vent line and tighten securely.
11. Install the manual belt tensioner assembly.

**NOTICE:**

Do not drill the engine lifter bracket to install a hose clip, since this will weaken the bracket.

**NOTICE:**

Do not fasten the hose clip to either of the engine lifter bracket mounting bolts. The hose clip **must** be attached to the bolt on the right side of the lifter bracket to ensure unrestricted air flow through the vent line.

12. To prevent sags and low points, secure the vent line with the hose clip. Remove the gear case cover mounting bolt on the right side of the lifter bracket (bolt No. 12 – see Figure 4). Attach the hose clip to the bolt, reinstall, and torque the bolt to 58 –73 N·m (43 – 54 lb·ft).
13. Refer to section 8.2.3 of the service manual and install the alternator drive belt.



**CAUTION:**

**Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

14. Reconnect starting power, start the engine, and check for proper vent line operation.

**ADDITIONAL SERVICE INFORMATION**

Additional service information is available in the Detroit Diesel *Series 60 Service Manual*, 6SE483. The next revision to this manual will include the revised information. As a convenience to holders of the *Series 60 Service Manual*, information in service manual format is attached. The page(s) may be inserted into the manual.

**NOTE:**

Manual insert pages are numbered for insertion into the current *Series 60 Service Manual* dated January 1999. Service manuals are available from authorized Detroit Diesel distributors. If this bulletin was obtained from the Internet, service manual page(s) are available by returning to the screen “SIB Index,” selecting attachment pages, and printing the page(s).

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