

DETROIT DIESEL



Installation Instructions

18SP621* – Series 50[®] Gillig[®] Phantom Diesel Particulate Filter Installation

*Revision – 6/12/06

DESCRIPTION

A replacement diesel particulate filter assembly has been released for use in Gillig Phantom buses with Series 50 diesel engines built after serial number 04R0041511. There are two variations on the filter design used. The appropriate part numbers to mate with the OEM-installed exhaust tubing are listed in Table 1 below. A partial list of available replacement parts is listed in Table 2.

PARTS LIST

See Table 1 for the Gillig Phantom diesel particulate filter parts:

Part No.	Qty.	Description
23535838	1	Diesel Particulate Filter – For buses with OEM-installed 4 in. I.D. soot muffler (flex pipe)
23536050	1	Installation Kit - OEM-installed 4 in. flex pipe
23535837	1	Diesel Particulate Filter – For re-powered buses installed with a 5 in. I.D. soot muffler (flex pipe)
23536048	1	Installation Kit – Re-powered bus with 5 in. flex pipe
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Table 1 Components of S50 Gillig Phantom Diesel Particulate Filter Installations

Part No.	Qty.	Description
23535829	*	V-Band Clamp
23535830	*	Gasket

* V-Band Clamp and gasket part numbers are provided as a reference for ordering replacement parts, if required, in the event either is damaged during removal or installation.

Table 2 Replacement Service Parts for S50 Gillig Phantom Diesel Particulate Filter

REMOVAL OF DIESEL PARTICULATE FILTER

Perform the following steps for removal of current components:



PERSONAL INJURY

To avoid injury from hot surfaces, wear protective gloves or allow engine to cool before removing any component.



PERSONAL INJURY

To avoid injury when removing or installing a heavy engine component, ensure the component is properly supported and securely attached to an adequate lifting device to prevent the component from falling.

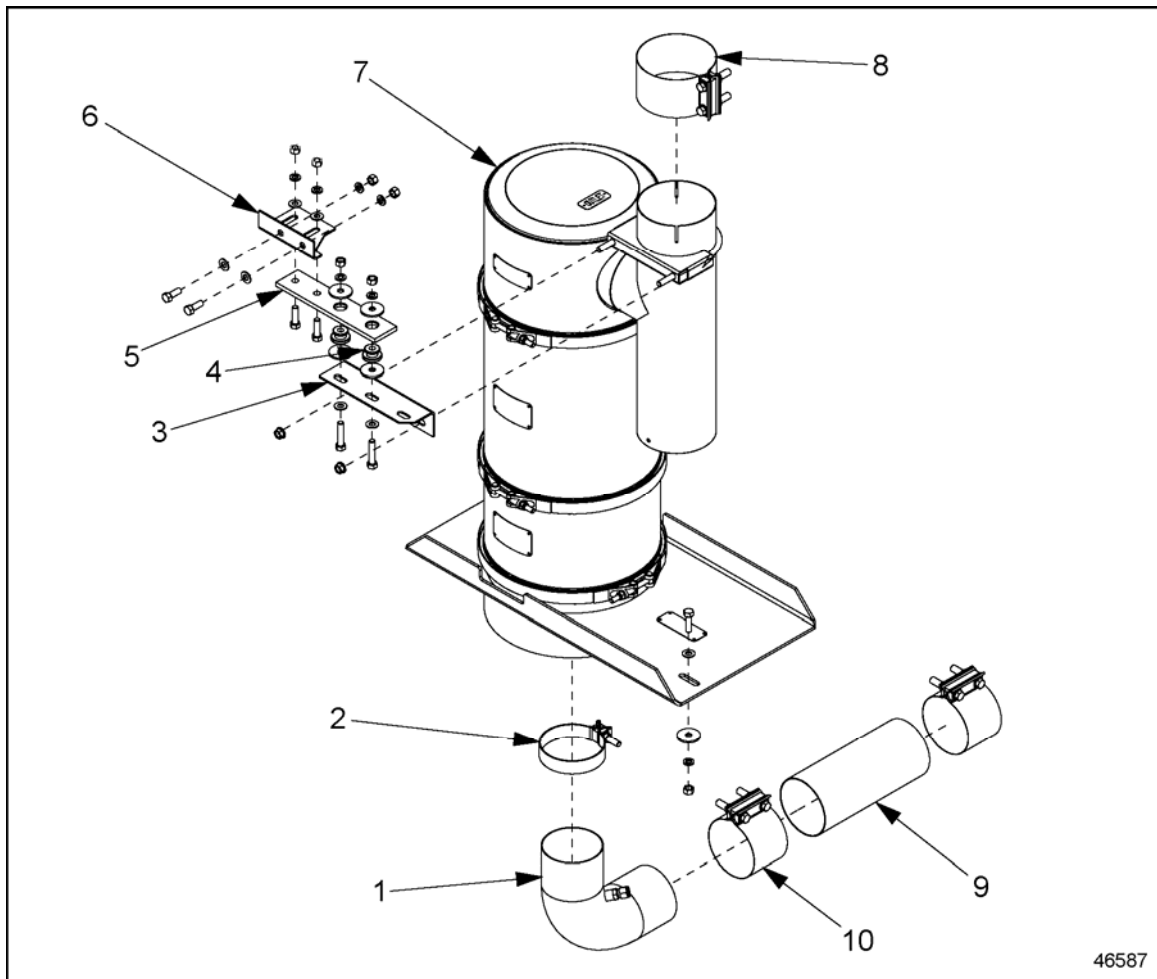
NOTE:

The diesel particulate filter weighs approximately 36 Kg (80 lbs).

1. Gain access to the muffler / filter compartment.
2. Disconnect the exhaust temperature sensor probe lead, loosen the sensor retaining nut, and remove the sensor. Retain the sensor for reuse.
3. Remove the upper U-clamp and mounting bracket securing the top of the outlet section of the filter to the chassis.
4. Remove the exhaust clamp and remove the tail pipe section.
5. Loosen the large V-band clamps that secure the center section of the old filter to the inlet and outlet sections.
6. Remove the center and outlet sections individually.
7. Loosen and remove the exhaust clamp securing the exhaust pipe to the filter inlet; separate the pipe from the muffler.
8. Remove the bolts, washers, and nuts securing the inlet section mounting plate to the chassis. Remove the inlet section from the chassis.
9. Remove the muffler compartment floor plate and increase the exhaust inlet bolt to 12 in. diameter, making sure to increase the hole equally around the circumference.

INSTALLATION OF DIESEL PARTICULATE FILTER

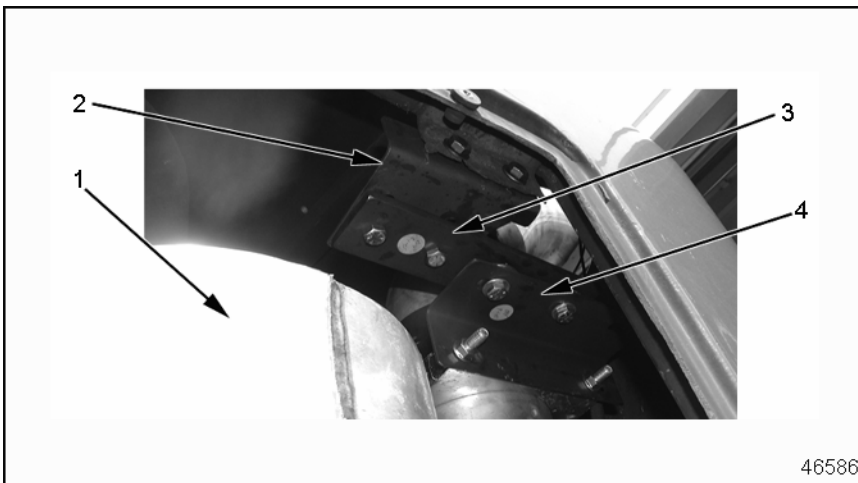
Perform the following steps for installation of new components (Refer to Figures 1, 2 and 3):



- | | |
|---------------------------------------|---|
| 1. Inlet Pipe (OEM Installation) | 6. Top Bracket at Chassis |
| 2. Clamp, Accuseal 4 in. | 7. Diesel Particulate Filter |
| 3. Top Bracket at Filter Outlet | 8. Clamp, Torctite 5 in. |
| 4. Bushing, Isolating | 9. Flex Pipe, 4 in. I.D. x 9.5 in. long |
| 5. Top Bracket Bushing Mounting Plate | 10. Clamp, Easyseal 4 in. |

Figure 1 S50 Gillig Phantom DPF OEM Installation

1. Loosen the V-band clamps and separate the four sections of the filter. Be careful to avoid damage to the gaskets between each of the filter sections.
2. Reinstall the muffler compartment floor plate and secure using the appropriate hardware.
3. Install the muffler inlet section through the left side rear access opening. Align the holes in the mounting plate of the inlet housing to the chassis mounting brackets. Secure the plate with two 3/8 in. - 16 x 1.25 in. bolts, two flat washers, two thick, flat washers, two lock washers, and two nuts. Do not tighten fasteners at this time.
4. Assemble the top muffler mounting bracket assembly. See Figures 1, 2 and 3. Attach to the chassis.



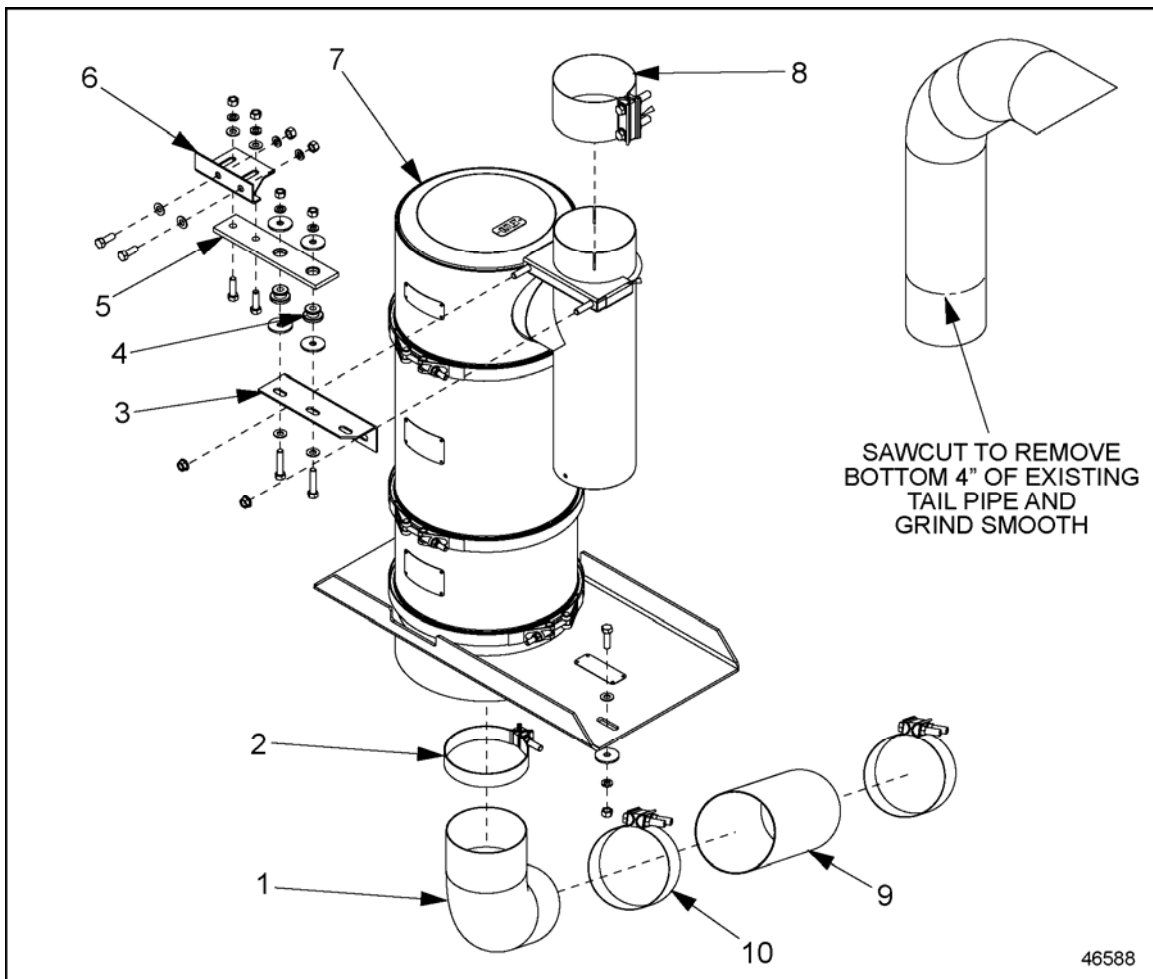
- | | |
|------------------------------|---------------------------------------|
| 1. Diesel Particulate Filter | 3. Top Bracket Bushing Mounting Plate |
| 2. Top Bracket at Chassis | 4. Top Bracket at Filter Outlet |

Figure 2 Gillig Phantom (OEM and Retrofit Installations) DPF Mounting Bracket Orientation

5. Install the gasket and V-band clamp on the inlet section upper surface. Install the catalyst section with the part number tag oriented towards the side access door. Secure the clamp but do not tighten.
6. Install the gasket and V-band clamp on the upper portion of the catalyst section. Install the filter center section with the part number tag oriented towards the side access door. Secure the clamp but do not tighten.
7. Install the gasket and clamp on top of the filter section. Install the outlet section with the exhaust outlet oriented below the opening in the roof. Secure the clamp but do not tighten.
8. Install the U-clamp, securing the top of the filter to the bracket assembled in step 3 and the outlet tail pipe to the chassis. Do not tighten hardware at this time.

NOTE:

Retrofit installations may require the removal of 4 in. off of the bottom of the tail pipe. See Figure 3.



- | | |
|---------------------------------------|--|
| 1. Inlet Pipe (Retrofit Installation) | 6. Top Bracket at Chassis |
| 2. Clamp, Accuseal 5 in. | 7. Diesel Particulate Filter |
| 3. Top Bracket at Filter Outlet | 8. Clamp, Torctite 5 in. |
| 4. Bushing, Isolating | 9. Flex Pipe, 5 in. I.D. x 18 in. long |
| 5. Top Bracket Bushing Mounting Plate | 10. Clamp, Easyseal 5 in. |

Figure 3 S50 Gillig Phantom DPF Retrofit Installation

9. Install the tail pipe with outlet oriented towards the rear of the vehicle and attach the exhaust clamp.
10. Install the temperature probe into the M14 x 1.5 threaded boss on the side of the outlet can. Tighten the nut using hand tools only.

NOTE:

Be sure the sensor wires are secured to avoid contact with the filter body and the harness is not under tension.

11. Tighten the three large V-band clamps securing the filter sections to 16 N·m (12 lb-ft).

NOTICE:

Do not use an impact wrench to tighten the clamps; this may cause galling of the threads.
Check to be sure there is adequate clearance between the filter body and the chassis and adjust if necessary to allow air circulation.

12. Tighten the mounting hardware to secure the filter in the chassis. Torque the 3/8 in. bolts to 41-47 N·m (30-35 lb·ft). The exhaust pipe to inlet clamp torque is 81 N·m (60 lb·ft).
13. Check for exhaust leaks.
14. Reinstall the fiberglass side access door and the upper exhaust compartment access cover, if removed.

NOTICE:

Be sure the exhaust pipe does not contact the upper cover to avoid heat transfer and damage to the fiberglass rear cap on the bus.

DETROIT DIESEL

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