

# DETROIT DIESEL



## Installation Instructions

### 18SP620\* – Series 50<sup>®</sup> Orion<sup>®</sup> V Diesel Particulate Filter Installation

\*Revision – 1/27/06

#### DESCRIPTION

A replacement diesel particulate filter assembly has been released for use in Orion V buses with Series 50 diesel engines built after serial number 04R0041511. 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 Orion V diesel particulate filter parts:

Part No.	Qty.	Description
23535759	1	Diesel Particulate Filter Assembly – Orion V or VII
18SP620Rev.	1	Installation Instructions
23536051	1	Installation Kit for Orion V

Table 1 Components of S50 Orion V Diesel Particulate Filter Installation

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 Orion V or VII Diesel Particulate Filter

#### REMOVAL OF DIESEL PARTICULATE FILTER

Perform the following steps for removal of current components:

 <b>WARNING:</b>
<b>PERSONAL INJURY</b>
<b>To avoid injury from hot surfaces, wear protective gloves or allow engine to cool before removing any component.</b>

 **WARNING:**

**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. Remove the left rear side and upper access panels covering the filter compartment.
2. Remove the filter through the street side access opening after the cross brace has been removed.
3. Disconnect the Exhaust Temperature Sensor probe lead, loosen the sensor retaining nut, and remove the sensor. Retain the sensor for reuse.
4. Remove the bolt and nut from the upper band clamp that secures the filter to the chassis. This is so the clamp can be left in place but spread open to allow removal of the filter.
5. Remove the tail pipe section.
6. Loosen and remove the large V-band clamps that secure the center section of the old filter to the inlet and outlet sections.
7. Remove the center and outlet sections individually.
8. Loosen the clamp securing the exhaust pipe to the filter inlet.
9. Remove the bolt, washer, and nut securing the bottom mounting bracket clamp to the inlet housing section of the chassis. This is so the clamp can be left in place but spread open to allow removal of the filter.
10. Remove the inlet section from the chassis.

## **INSTALLATION OF DIESEL PARTICULATE FILTER**

Perform the following steps for installation of new components:

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. Install new upper muffler to chassis mounting bracket supplied in the kit.
3. Install the filter inlet section through the left side rear access opening. Lower the inlet section housing into the bottom mounting bracket and loosely install the 3/8 in. bolt, washer and nut. Do not tighten fasteners at this time.
4. Connect the exhaust pipe to the muffler inlet housing.
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. Open and secure the mounting clamp to the filter. Install the 3/8 in. bolt, washer and nut. Do not tighten hardware at this time.
8. Install the gasket and V-band clamp on the top of the filter section. Install the outlet section. Secure the clamp but do not tighten. Orient the temperature sensor port to allow sufficient clearance for installation and operation without contacting the chassis.
9. Install the bolt and isolators securing the upper clamp to the new chassis mounting bracket.
10. Install the tail pipe with the outlet oriented towards the rear of the vehicle.
11. 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.

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

<b>NOTICE:</b>
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.

13. 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).
14. Check for exhaust leaks.
15. Reinstall and secure the muffler compartment cross brace.

16. 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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