

Installation Instructions

18SP518—Install Remote-Mounted Oil Filtering System Kit 23540431

Introduction

This remote-mounted oil filtering system is intended for installation on Detroit Diesel Series 4000™ models Txx37Kxx used in construction, industrial, or generator

set applications. It is not intended for use on marine engines. The remote-mounted system provides additional filtration to permit extending oil filter service intervals. The system includes the items listed in Table 1.

Part No.	Qty.	Description
23540427	1	Bracket Asm., Oil Filter Housing Support
524 997 0645	3	Seal Ring, Square Cut 59.92
700429024000	2	O-Ring, 24 X 5 MMN 429
000933010058	5	Bolt, M10 1.50 X 35 (10.9)
23526403	2	Bolt, M12 1.75 X 50 (8.8)
5351840006	1	Adaptor, Remote Oil Filter
23540074	3	Connector, Oil Filter
5319970872	1	Fitting, JIC M48 X 2 1 7/8 - 12
23528303	1	Elbow, 90-Degree #24 – 37-Degree JIC (Female) M48 X 2
5319972032	2	Plug Asm., Iso Port M48 X 2.00 - 6
23540451	2	Fitting, Straight SAE 37-Degree JIC Swivel (Female)
23540452	2	Fitting, Straight SAE 37-Degree JIC Swivel (Male)
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Table 1. Remote Oil Filtering Service Kit 23540431

Installation

Installation of the remote-mounted filtering system requires removing the former engine-mounted oil filtering system.

Remove Engine-Mounted Oil Filtering System

Remove the engine-mounted oil filtering system as follows:



CAUTION:

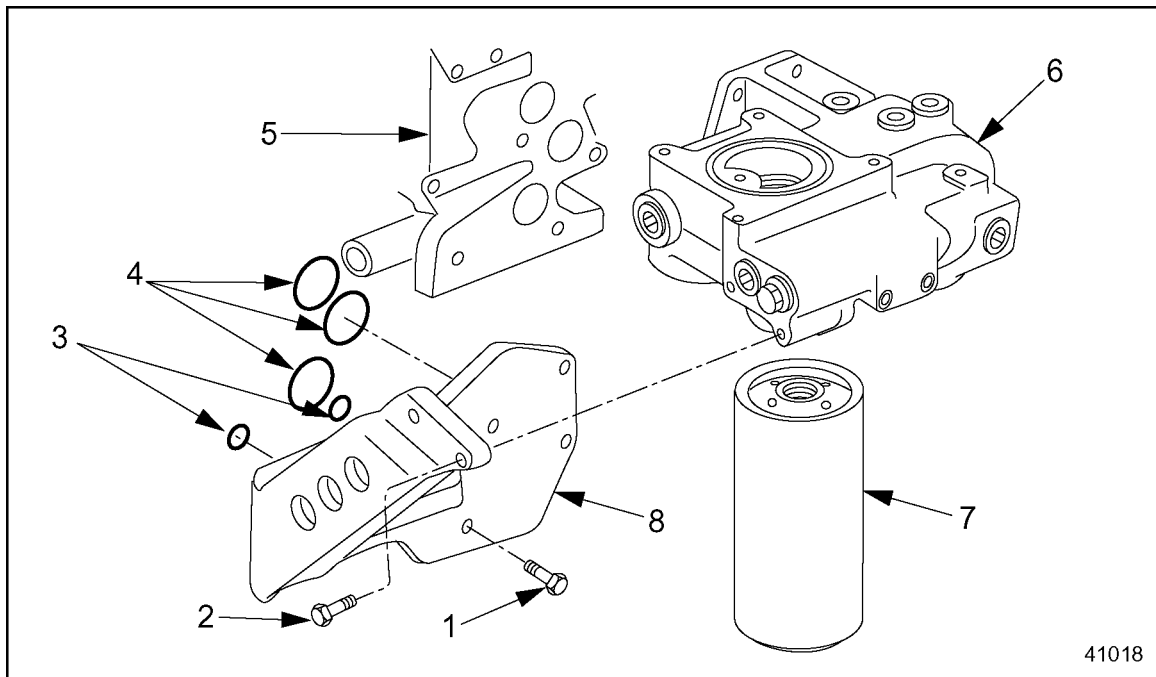
To avoid injury from accidental engine start-up while servicing the engine, disconnect/disable the starting system.



CAUTION:

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

1. With the engine shut down and at ambient temperature (cool to the touch), disconnect battery power to the starting system
2. Place a suitable container under the oil filters to catch any oil that may drain when filters are removed.
3. Using a strap wrench, remove all (4) spin-on lubricating oil filters (see Figure 1) and drain elements into the container. Dispose of the oil and filters in an environmentally responsible manner, according to state and/or federal (EPA) recommendations.



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| 1. Bolt, Oil Filter Adaptor Mounting Bracket | 5. Oil Distribution Housing |
| 2. Bolt, Oil Filter Housing Mounting | 6. Housing, Oil Filter |
| 3. O-Ring, Mounting Bracket-to-Oil Distribution Housing (small) | 7. Oil Filter, Spin-on |
| 4. Seal Ring, Mounting Bracket-to-Oil Distribution Housing (Square Cut) | 8. Bracket, Oil Filter Housing Support |

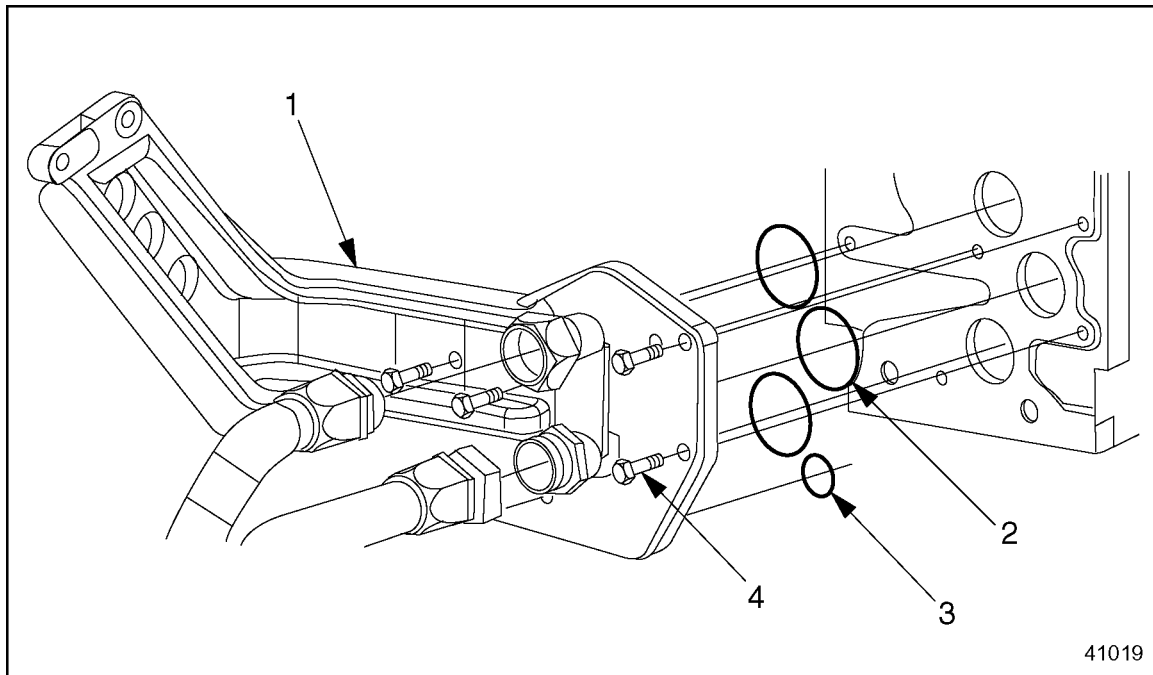
Figure 1. Remove Oil Filters, Housing, and Mounting Bracket

4. Remove the (2) hex bolts securing the oil filter housing to the housing support bracket and remove the filter housing. Discard the housing. See Figure 1.
5. Remove the (5) hex bolts securing the oil filter housing support bracket to the oil distribution housing and remove the support bracket. Discard the bracket. See Figure 1.
6. Remove the (3) large, square-cut seal rings and the (2) small O-rings from the oil distribution housing and discard. See Figure 1.
7. Carefully clean the oil filter housing support bracket mounting pad and sealing areas on the oil distribution housing to remove all sealing materials. *Do not allow contaminants to enter the oil inlet or outlet ports.*

Install Remote Oil Filtering Components

Install remote oil filtering kit components as follows:

1. Apply a coating of light oil or petroleum jelly to the (3) large, square-cut seal rings and the (2) small O-rings. Insert the rings into the recessed seats of the new oil filter housing support bracket. See Figure 2.



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| 1. Bracket, Oil Filter Housing Support | 3. O-Ring (small) |
| 2. Seal Ring, Square Cut (Large) | 4. Bolt, Oil Filter Housing Support Bracket |

Figure 2. Install Seal Rings into the Oil Filter Housing Support Bracket

2. Attach the support bracket to the oil distribution housing using the (5) M10 hex bolts. See Figure 2. Torque bolts to 60 - 66 N•m (44 - 49 lb-ft).

3. Select a suitable location for mounting the remote oil filter adaptor, making sure there is enough room for convenient filter replacement. See Figure 3 for a typical installation location. Clean the mounting surface for the filter adaptor.

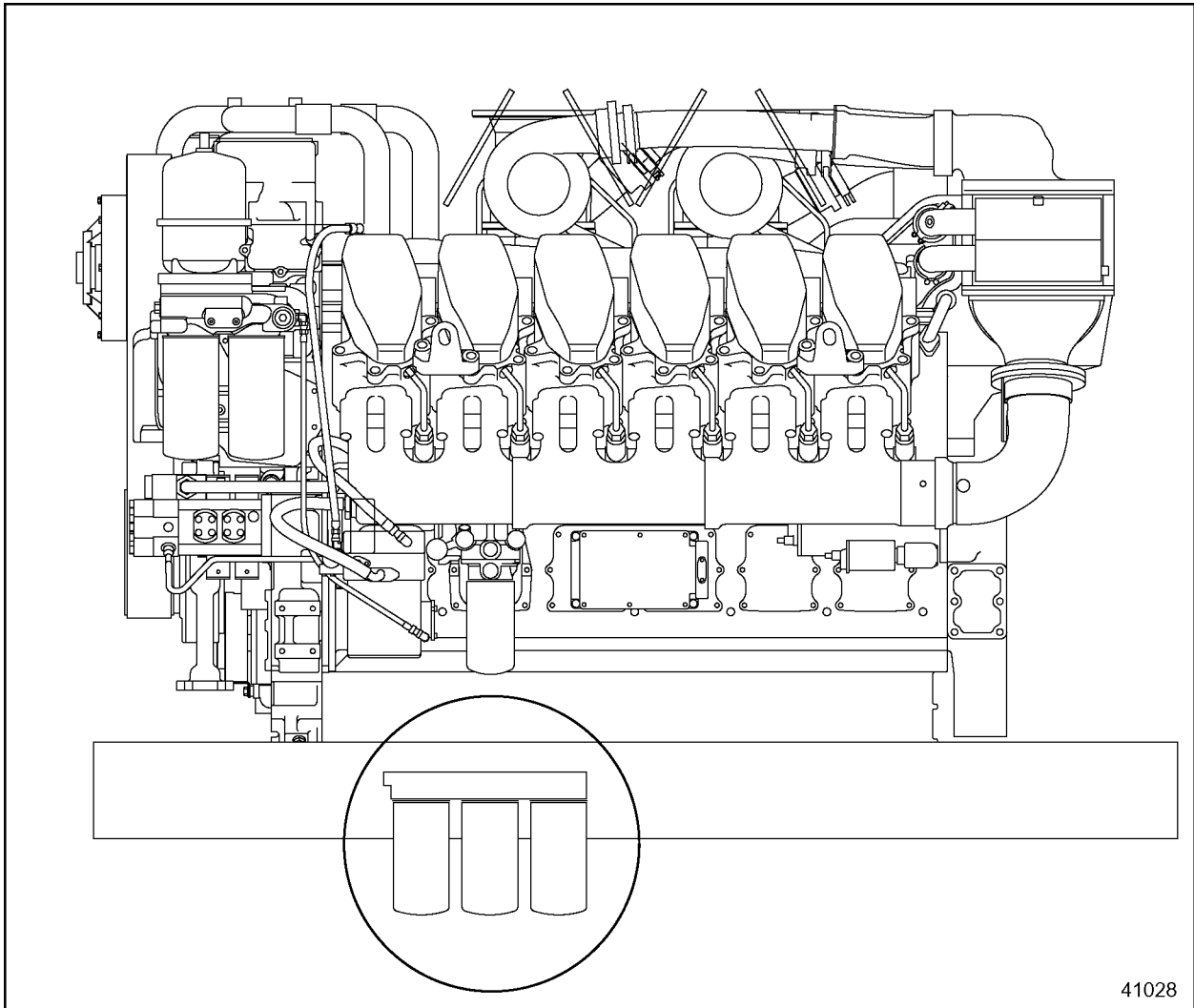


Figure 3. Suggested Mounting Location for Remote Oil Filter Assembly

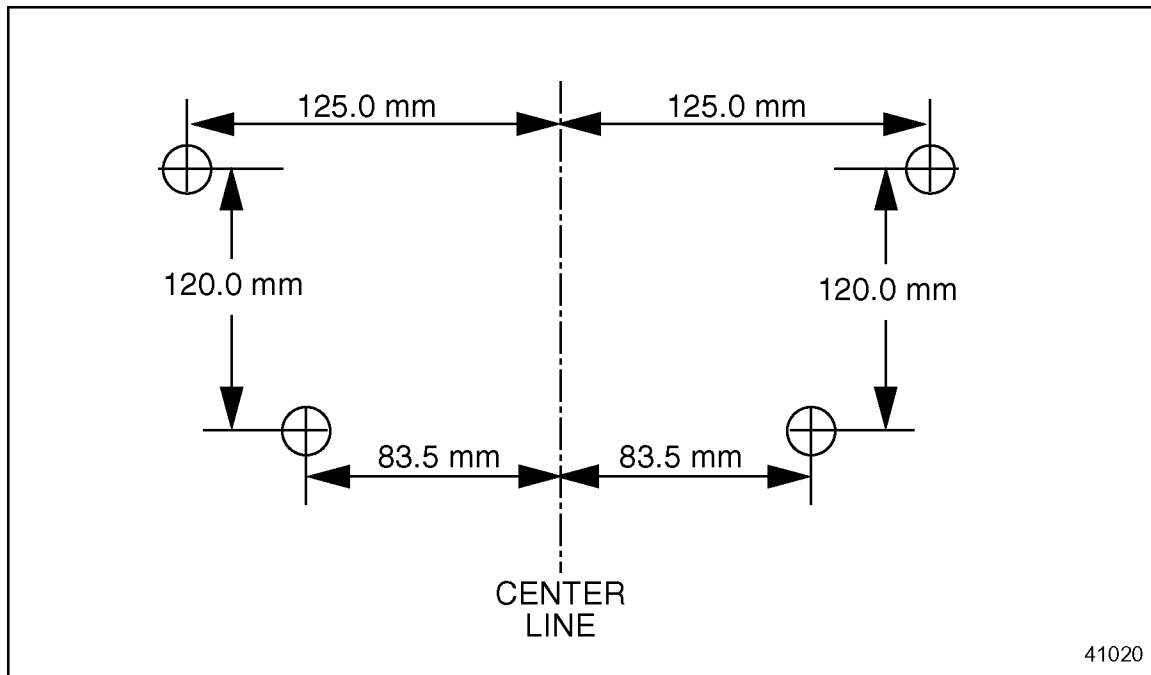
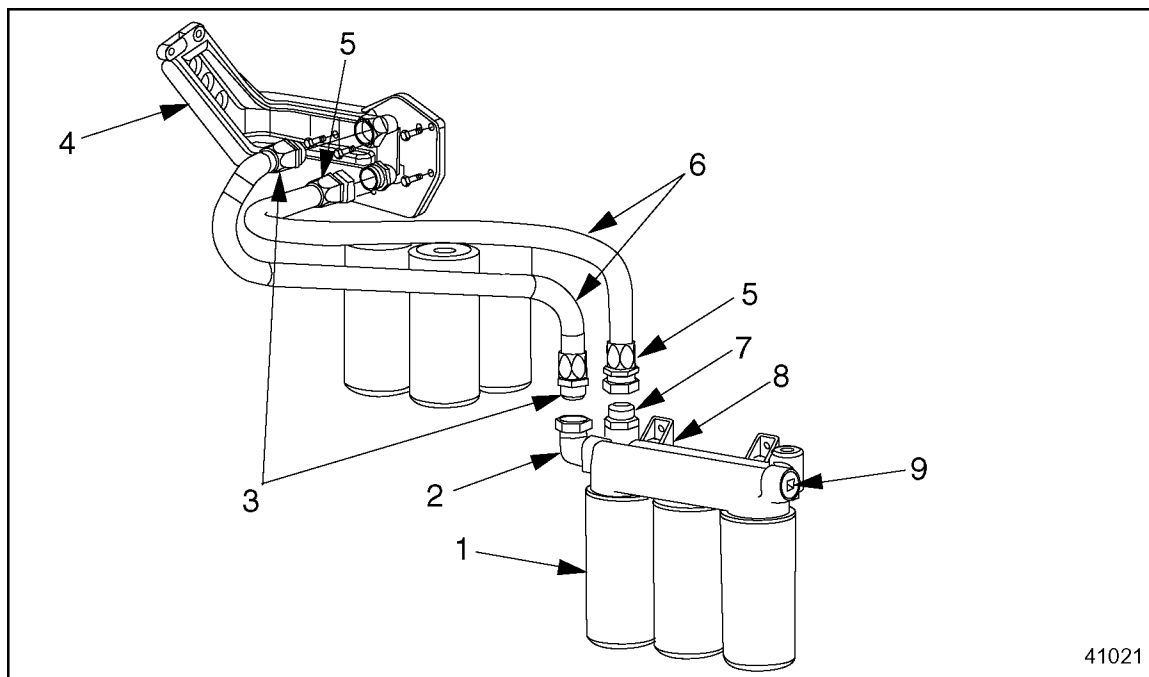


Figure 4. Oil Filter Adaptor Bolthole Template

4. Create a template to properly locate the oil filter adaptor mounting bolt holes. See Figure 4.
5. Using the template, drill and tap (4) holes to accept suitable, locally available bolts. Do not exceed a maximum bolthole size of 11mm (0.43 in.).
6. With the remote oil filter adaptor placed on the workbench, apply Loctite® 609, or equivalent, to the threads of the (3) oil filter connectors and install into the remote oil filter adaptor. Using a 46mm socket, torque connectors to 126 N•m (93 lb-ft). See Figure 5.



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| <p>1. Oil Filter, Spin-on
 2. Elbow, 90-degree (Filtered Oil Outlet)
 3. Fitting, Straight (Filtered Oil Hose)
 4. Bracket, Oil Filter Housing Support
 5. Fitting, Straight 37-Degree JIC Swivel (Female) (Unfiltered Oil Hose)</p> | <p>6. Aeroquip FC350-24 Hose
 7. Fitting, JIC M48 X 2 1 7/8 – 12 Unfiltered Oil inlet)
 8. Adaptor, Remote Oil Filter
 9. Plug Asm., Iso Port M48 X 2.00 - 6</p> |
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Figure 5. Remote Oil Filter Installation

7. Place the remote oil filter adaptor on its mounting pad and install (2) plugs (P/N 5319972032) in the two right-hand inlet and outlet ports. See Figure 5, Item 9. Torque plugs to 145 - 160 N•m (107 - 118 lb-ft).
8. Install (1) 90-degree elbow (P/N 23528303) in the *clean oil outlet port* of the remote oil filter adaptor. See Figure 5, item 2. Torque to 145 - 160 N•m (107 - 118 lb-ft). *Make sure the elbow is oriented so the open end points straight up.*
9. Install (1) straight fitting (P/N 5319970872) in the dirty oil inlet of the filter adaptor. See Figure 5, Item 7. Torque to 145 - 160 N•m (107 - 118 lb-ft).
10. Attach the remote oil filter adaptor to the selected mounting location using (4) locally available 10.9 grade bolts of suitable length, (4) lock washers, and (4) nuts, if required. Torque to specification for the bolt selected. Refer to the Detroit Diesel *Series 4000 Service Manual*, 6SE4011.
11. Measure the distance from the oil inlet and outlet fittings on the oil filter housing support bracket to the inlet and outlet fittings on the remote oil filter adaptor. *Allow sufficient length for the bend radius of the hose.*
12. Obtain a sufficient length of Aeroquip® FC350-24 hose to make two hoses per the measurements taken in Step 11.
13. Using appropriate hose assembly equipment, install (2) female fittings (P/N 23540451) to the ends of the *unfiltered oil* hose. Install (2) male fittings (P/N 23540452) to ends of the *filtered oil* hose.
14. Connect one end of the unfiltered oil hose assembly to the inboard (dirty) oil inlet fitting on the remote oil filter adaptor. Connect the other end to the bottom fitting on the oil filter housing support bracket. *Do not tighten.* See Figure 5.

15. Connect one end of the filtered oil hose assembly to the outboard (clean) oil outlet fitting on the remote oil filter adaptor. Connect the other end to the top fitting on the oil filter housing support bracket. *Do not tighten.* See Figure 5.
16. Before tightening hoses, place a separate wrench on the fittings installed in the oil filter housing support bracket and the oil filter adaptor to keep them from twisting or cracking during hose installation. While holding this wrench steady, tighten hose end fittings to 216 - 227 N•m (159 - 167 lb-ft).
17. Use tie straps as required to secure hoses together. Be sure the hose routing does not allow either hose to rub or chaff at any point. Additional locally supplied support clips may be required.
18. Install spin-on oil filter elements onto the oil filter adaptor.
19. Reconnect engine-starting power and check engine oil level.

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

20. Start the engine, allow it to idle, and check for leaks. Operate the engine for 3 - 5 minutes, and then shut it down. Allow sufficient time for oil drain back, and check the oil. Add oil as required to bring it to the proper operating level.

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