AirDog® DETROIT SERIES 60 UPGRADE KIT

INSTALLATION MANUAL

For Trucks Equipped with
Detroit Series 60 Engines

PLEASE READ THESE INSTRUCTIONS THOROUGHLY BEFORE BEGINNING INSTALLATION

Revised 8/9/19

Part No. UPG-DEFS

Proudly Made in the USA

AirDog® HEAVY DUTY DIESEL FUEL SYSTEMS by PureFlow® Technologies, Inc.

www.airdogdiesel.com
1-573-635-0555 or
1-877-463-4373

Providing "Test Cell Performance" in "Real World Conditions" Since 1993!

The Detroit Series 60 Secondary Fuel System Upgrade

PureFlow® Technologies, Inc. addresses diesel engine efficiency and peak performance on the fuel side from the fuel tank to the tip of the injector. Removing entrained air and fuel vapor from the fuel flow to the engine with the AirDog®II 4G, Champ, and Champ II is not enough if the internal conditions of the fuel system componets are such to allow vapor to reform in the injector, itself.

Specifically, if the fuel pressure/flow to the injector, even with entrained air and vapor removed, is insufficient to totally fill the injector barrel on the up stroke of the plunger, a void or low presure will form that allows vapor to re-form within the injector. The resulting "injector lag", is just another name for "retarded injection timing", and leaves the engine with increased fuel consumption, lost power and incresed exhaust emissions.

To overcome these concerns, upgrading the DETROIT SERIES 60 secondary fuel system is simple! Replace the small ID STEEL fuel lines "**A** & **B**" with #8 lines and replace the 16mm "FOR-SEAL" outlet fitting in the transfer pump with ported 16mm ORB x #8 JIC fitting, the two 14mm "FOR-SEAL" fittings in the secondary fuel filter head with 14mm ported #8 JIC fittings and the steel fuel lines with #8 DOT approved fuel line.

It is always wise to have your engine's fuel rail pressure checked annually to be sure that is is within required specifications. Detroit Series 60 rail specifications is 58-72 PSI. The closer to 70 PSI, the better. Increased fuel consumption from a worn out fuel pump is much more costly than replacement cost of the pump!

Table of Contents

SAFETY GUIDELINES

CAUTION: Chock the vehicle's tire to prevent from rolling.

CAUTION: Wear safety glasses when operating power tools such as drills and grinders or when using a punch or chisel.

CAUTION: Route the fuel lines keeping them away from hot exhaust components and/or moving parts. Properly secure the fuel lies to prevent chaffing.

If you are uncertain of any installation procedure, contact *PureFlow® Technologies, Inc.* for technical assistance.

Section 3: Upgrade Parts List

QTY	Description	Part Number	Image
1	**Installation Manual**	206-1-0602K	
1	**8 ft Section #8 SteelBraid Reinforced Fuel Line**	4C-1-08-08-8FT	
15	**12” Zip Tie**	5H-2-1-12	

905-03-0300-FK

1	**#8 F Swivel x #8 90° Fuel Line End**	4A-2-13-08-08-S	
3	**#8 F Swivel x #8 Straight Fuel Line End**	4A-1-13-08-08-S	
1	**3/8 M NPT x #8 M JIC Extra Long 90° Elbow**	4A-2-01-08-06-SZ-XLG	
3	**1/4 M NPT x #8 M JIC Adapter-Ported**	4A-1-02-08-04-S-P	
2	**14mm M x #8 M JIC Straight Metric Adapter - Ported**	4A-1-01-08-14-S-P	
1	**16mm M x #8 M JIC Straight Metric Adapter - Ported**	4A-1-01-08-16-S-P	

Section 4: AirDog® Detroit Series 60 Fuel Line Upgrade Overview

The Detroit Series 60 engine utilizes “FOR-SEAL” fittings with steel lines on the high pressure side of the transfer pump. These fittings have small passageways and are restrictive to the fuel flow to the engine. To maximize the efficiency of the Series 60 engines, it is necessary to replace the restrictive fuel fittings and lines with the larger and less restrictive lines and fittings. These fittings are supplied with the AirDog® installation kit.

Figure 1

AirDog®
#8 JIC x 14mm
Passageway 0.375” ID

14mm “FOR-SEAL”
Fitting 0.240” ID
Passageway

NOTE: Secondary fuel filters are optional on Detroit Diesel Series 60 engines. Section 4A is for engines WITHOUT secondary fuel filters. Section 4B is for engines WITH secondary fuel filters.

Figure 2

Detroit Series 60 WITHOUT Secondary Fuel Filter. Steel line carries fuel from transfer pump directly to the engine head.

Figure 3

Detroit Series 60 WITH Secondary Fuel Filter

Section 4A: Series 60 Engines WITHOUT a Secondary Fuel Filter

4A-1. Disconnect the steel fuel line from the "FOR-SEAL" fuel fitting at the fuel "OUT" port on the transfer pump and remove OE Fuel fitting.

Figure 4

4A-2. Install the new "Ported" 16mm x #8 JIC fitting in the transfer pump fuel "Out" port **OR** the "Ported" 1/4" M NPT x #8 M JIC fitting.

Figure 5

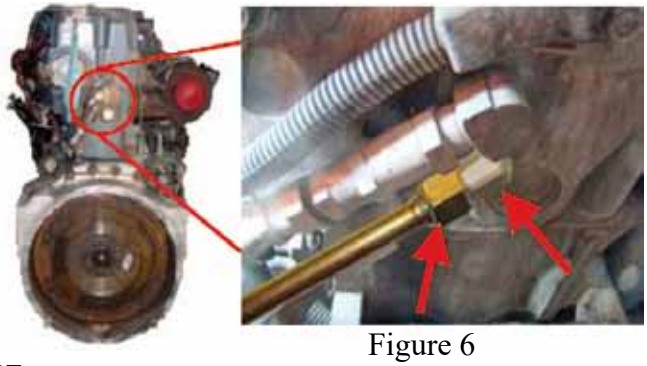


Figure 6

4A-3. Disconnect the OE fuel supply line from the "FOR-SEAL" fuel fitting at the back of the head and remove the fitting.

NOTE: You may remove the OE steel fuel line from the engine.

4A-4. Install the extended 3/8" NPT x #8 JIC 90° elbow into the fuel in port vacated by the "FOR-SEAL" fitting. Use diesel fuel compatible thread sealer on all NPT threads.

Figure 7

Extended 90° 3/8" NPT x #8 JIC Fitting

4A-5: Measure and cut the length of the fuel line required, when properly routed and secured, to make the connection from the transfer pump to the fuel inlet fitting at the back of the engine head. Assemble the fuel line with field attachable fuel line end fittings on each end.

Installing the Series 60 Fuel Line Upgrade, cont'd

4A-6. Connect and secure one end of the fuel line assembled in step 4A-5 to the transfer pump fuel "OUT" port.

Figure 8

Figure 9

4A-7. Route and connect the new fuel line to the new 90° #8 JIC fitting just installed in the back of the engine head.

4A-8. Properly tighten all fuel line connections and fittings. Secure the fuel lines with included zip ties to prevent chafing.

Section 4B: Series 60 Engines WITH a Secondary Fuel Filter

4B-1. Disconnect and remove the steel fuel line from the "FOR-SEAL" fuel fitting at the fuel "OUT" port on the transfer pump and from the secondary fuel filter, fuel in port. (Figures 10 & 11)

Figure 10

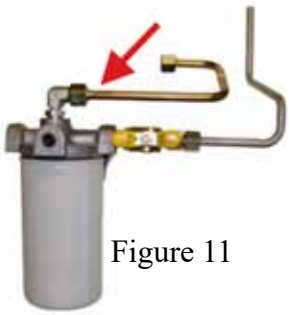
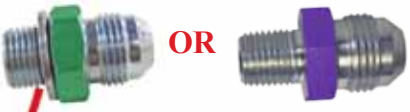


Figure 11

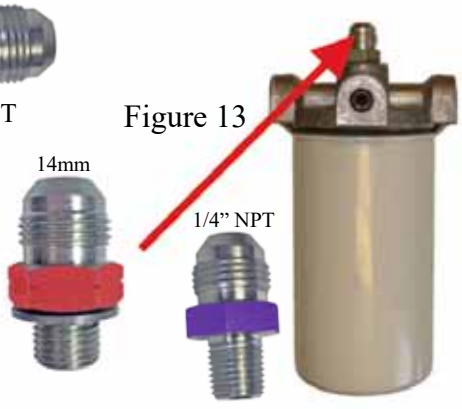
4B-2. Replace the "FOR-SEAL" fitting in the transfer pump with the "Ported" 16mm ORB x #8 JIC fitting **OR** the "Ported" 1/4" M NPT x #8 M JIC fitting. (Figure 12)



16mm OR 1/4" NPT

Figure 12

Figure 13



4B-3. Replace the "FOR-SEAL" fitting in the secondary filter with the "Ported" 14mm x #8 JIC fitting **OR** the "Ported" 1/4" M NPT x #8 M JIC fitting. (Figure 13)

Section 4B: Installing the Series 60 Fuel Line Upgrade, cont'd

4B-4. Measure and cut the length of the fuel line required to connect the transfer pump fuel "OUT" port to the secondary filter fuel "IN" port.

Figure 14

4B-5. Assemble the fuel line with one straight and one 90°, field attachable fuel line end fitting, as illustrated in Figure 15.

Figure 15

4B-6. Attach the straight end to the transfer pump "OUT" port (Fig. 14) and the 90° end to the secondary fuel filter. (Figure 16)

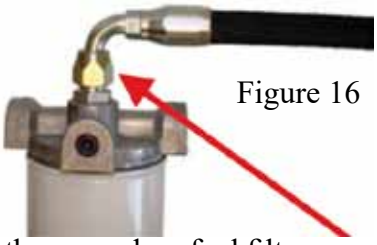


Figure 16

4B-7. Disconnect and remove the steel fuel line and shut-off valve from the secondary fuel filter outlet. (Figure 17)

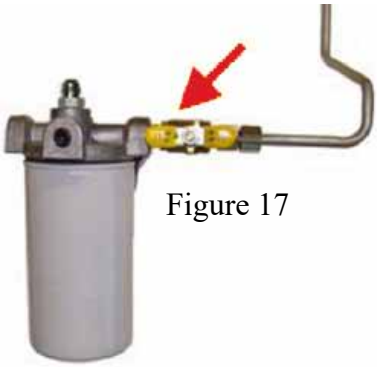


Figure 17

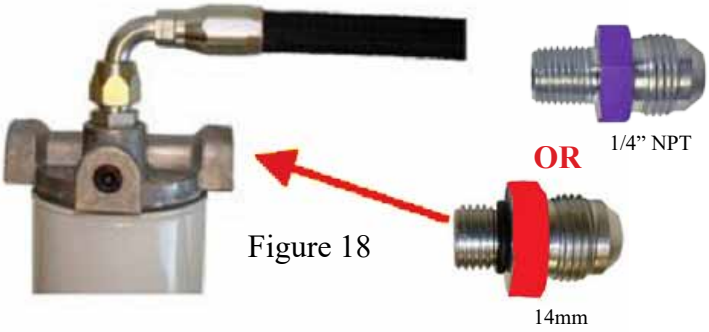


Figure 18

4B-8. Install the "Ported" 14mm x #8 JIC fitting **OR** the "Ported" 1/4" M NPT x #8 M JIC fitting in the "Out to Engine" port.

4B-9. Disconnect the OE fuel supply line from the "FOR-SEAL" fuel inlet fitting at the back of the head. Remove the steel line and fitting. (Figure 19)

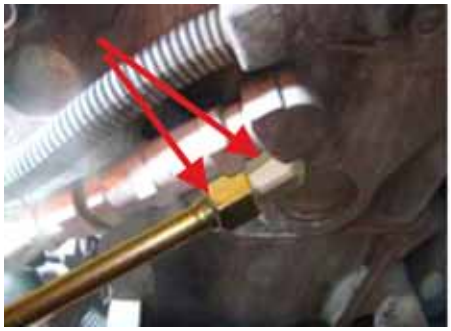
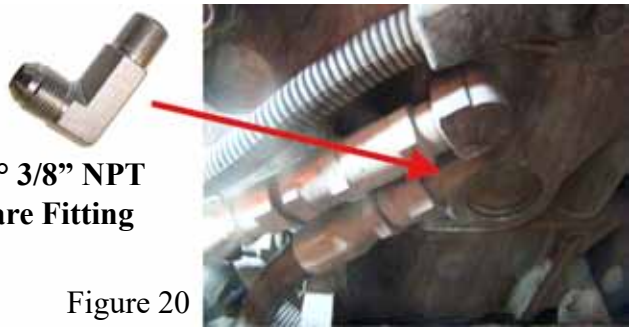


Figure 19



Extended 90° 3/8" NPT x #8 JIC Flare Fitting

Figure 20

4B-10. Install the 90° extended 3/8" NPT x #8 JIC fitting into the fuel in port vacated by the "FOR-SEAL" fitting. Use diesel fuel compatible thread sealer on all NPT threads. (Figure 20)

Section 4B: Installing the Series 60 Fuel Line Upgrade, cont'd

4B-11. Measure and cut the length of fuel line required to connect the secondary filter "OUT" port to the 90° #8 JIC fitting just installed in the back of the engine head. (Figures 21 & 22)

Figure 21

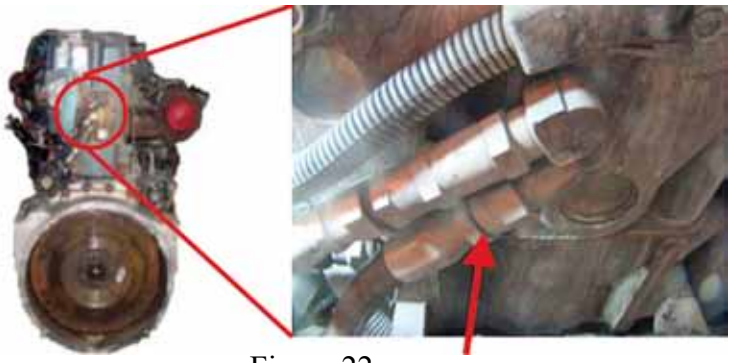


Figure 22

4B-12. Assemble the fuel line with a straight field attachable fuel line end fittings on each end. (Figure 23)

Figure 23

4B-13. Connect the end of the new fuel line to the fuel "OUT" port on the secondary fuel filter. Route and connect the other end to the 90° #8 JIC fuel fitting in the head. (Figures 24 & 25)

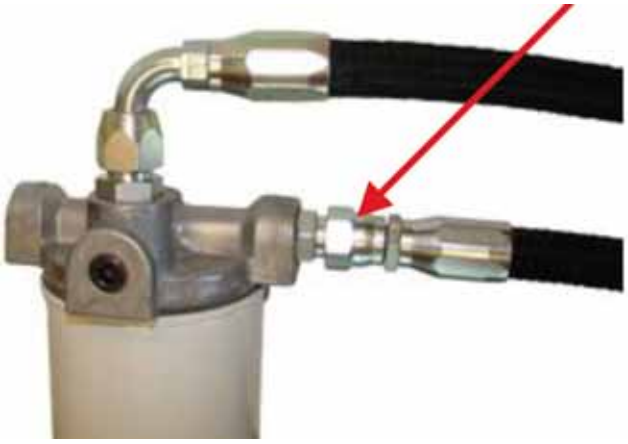


Figure 24

Figure 25

4B-14. Properly tighten all fuel line connections and fittings. Secure the fuel lines with included zip ties to prevent chafing.

World Headquarters

AirDog

FUEL PREPORATOR

www.airdogdiesel.com

1-877-463-4373 or

1-573-635-0555

Bulletin No. 206-1-0602K
Revised August 9, 2019