



**FILED**

**AUG 22 2007**

By The  
Office of The City Clerk

**Proposal to Supply California Air Resources Board**

**Diesel Particulate Filters Including Installation**

**for**

**City of Sacramento**

**Response to Invitation for Bid No. B081181007 (Due August 22, 2007)**

*Ironman Sales Consultant: Monica George*

*Prepared by: Sandy Fetters*

*Date: 08/21/2007*

## **Executive Summary**

***Ironman Parts & Services (Ironman)*** is pleased to respond to the **City of Sacramento's** Invitation for Bid to supply California Air Resource Board (CARB) diesel particulate filters (DPFs) including installation.

Ironman has been in the field of exhaust emissions for over 25 years, and we are partnered with the leading manufacturers of exhaust systems and components. We have completed thousands of diesel exhaust system retrofits for some of the largest fleets in the State and gained recognition as the leading retrofit partner and system installer in California.

***Why Ironman?*** Our vast experience and specific knowledge of Best Available Control Technology (BACT) as regulated by CARB will ensure that the City of Sacramento obtains a successful emission reduction retrofit program. With Ironman, you will be able to achieve "Emission Compliance with Confidence™."

There are no known or projected conditions that may impede Ironman's ability to complete this project. Ironman is financially solid and has realized a profit for many years. We have high creditability with Dun & Bradstreet, Credit.Net and other credit-worthy agencies. Our confidential Financial Report is available upon request.

## **Best Available Control Technology (BACT)**

The California Air Resources Board (CARB) determines Best Available Control Technology (BACT) and mandates that BACT must be installed to meet compliance regulations. Ironman will quote calculated current BACT as of the date of this bid. Material and labor costs are subject to increase as new advanced technologies are developed and approved as BACT, when vehicle assessments reveal quoted product is not verified as BACT, or when data-logging shows operating parameters cannot be met.

## **Contact Person**

The contact person throughout the completion of this project is Jayne McHugh, Emissions Program Manager, 2535 Anselmo Drive, Corona, CA 92879. Jayne may be contacted via telephone at (951) 520-2978 or by email at [sfettters@ironmanparts.com](mailto:sfettters@ironmanparts.com).

## **Mobile Services**

Ironman's installation teams work from fully stocked mobile trailers and will provide installations on-site at City of Sacramento's designated facilities after 3:00 p.m. Monday through Friday and/or on weekends as approved by City representatives.

## **Warranty Information**

Warranty for all products quoted is five (5) years or 150,000 miles. A copy of each product warranty is attached.

## **Electrical Requirements**

Cleaire Horizon product has been quoted as part of this bid. Please note the Cleaire Horizon's electrical demand is 2800 watts. Voltage requirement is 208 +/- volts (under load) single-phase AC & 60HZ. Circuit breaker requirement is 20 amps per plug. Each Horizon connected simultaneously requires its own electrical outlet. The connector plug is supplied. All other electrical is part of the Horizon system and is contained on the vehicle. This quote does not include any electrical wiring at customer's site.

The cord to the outlet is customer's responsibility. Ironman can provide a 25' cable assembly for \$483.70 or a 50' cable assembly for \$736.35 plus sales tax. The assembly has the red plug on one end, and a 208V/20A twistlock connector on the other end. The twistlock connector can be removed if you want to hardwire the cable to a shut-off/circuit breaker box.

## Scope of Work

Upon receipt of the City of Sacramento's Purchase Order or written authorization to proceed, Ironman's Program Coordinator will schedule data logging and vehicle assessments to determine exhaust temperatures and system configurations.

Per City of Sacramento's specifications, Ironman proposes to furnish and install Donaldson DOCs, DMFs and DPFS as well as Cleaire Horizon and Longview diesel particulate reduction devices. Please refer to the "Proposed Schedule" below. Compliance labels will be affixed as required by CARB, and any necessary testing will be conducted to verify the installation and functionality of the installed technology. Ironman will provide on-site maintenance service at the City of Sacramento's designated facilities at dates/times mutually agreed upon by City representatives and Ironman.

## Cost/Pricing Information

Please refer to the bid pricing form attached. Price is total cost per unit and includes diesel particulate reduction device, applicable installation parts, clamps/brackets, delivery fees, labor, and sales tax at 7.75%. Bid shall remain valid for a period of not less than 180 days from the date of submittal.

## Proposed Schedule

**+ 117 - 165 days ARO**

This proposed schedule is based upon receipt of City of Sacramento's Purchase Order or written authorization to proceed. Data logging, vehicle assessments, and installations will occur after 3:00 p.m. Monday through Fridays and/or on weekends as approved by City representatives. City of Sacramento representatives will make at least one bay available at each facility to Ironman's mobile installers for work to be performed.

The proposed schedule is based upon availability of vehicles at scheduled appointment times.

### Data logging/Vehicle Assessments

10 – 15 days

95 vehicles – Includes vehicle assessment, installation/removal of data logging equipment, and exhaust temperature analysis.

### Material Deliveries

Diesel particulate reduction device, applicable parts, and clamps/brackets.

28 – 56 days

**Mobile Installation** – Each team consists of two or three installers.

5 Donaldson DOCs:	1 team – 3 to 5 hours per installation/per team.	3 – 4 days
15 Donaldson DMFs:	2 teams – 3 to 5 hours per installation/per team.	4 – 6 days
30 Donaldson DPFS:	2 teams – 3 to 5 hours per installation/per team.	7 – 9 days
25 Cleaire Longviews:	2 teams – 16 to 24 hours per installation/per team.	35 – 40 days
20 Cleaire Horizons:	2 teams – 14 to 18 hours per installation/per team.	30 – 35 days

## On-Site Maintenance and Service

All emission retrofits require filter cleaning/deashing service at approximately 50,000 miles or 1 year, whichever comes first. Additionally, mechanical issues with the engine and/or vehicle can cause premature plugging of the filter resulting in more frequent service intervals. Ironman will provide maintenance services for all retrofit brands at City of Sacramento's designated facilities via mobile services. Please be aware that improper maintenance of the retrofit can void the manufacturer's warranty, and that many vendors do not provide maintenance service for the retrofits that they sell and install.

### Service Intervals

Ironman recommends semi-annual service intervals for preventative maintenance on all substrates.

### Filter Cleaning at City of Sacramento's Designated Facility (Mobile Services)

Pulse Cleaning Only \$400.00 per filter (minimum of 3 substrates per visit).

- Average maintenance hours per filter cleaning is 4 hours. Mobile service includes removal and reinstallation of filter to be cleaned.

## **Payment Terms**

Ironman's payment terms are Net 30

## **References**

### **City of San Bernardino**

George Newlin - (909) 384-5220

1 location - 26 vehicles

### **City of Newport Beach**

Tom Fulton – (949) 718-3464

1 location – 8 vehicles

### **Waste Management Corp, Orlando, FL**

13 locations - 480 vehicles

### **Port of Long Beach, Long Beach, CA**

6 locations - 514 vehicles

### **First Student, Gardena, CA.**

6 locations - 290 vehicles

***Project Summary:*** Conducted fleet analysis to determine implementation percentage; data logged vehicles to determine best available control technology (BACT); conducted fleet assessment to determine best configuration/part number to be applied; and provided on-site installation, maintenance training, and general assistance until project was completed. Back pressure testing conducted to ensure product performance.



# CITY OF SACRAMENTO

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PROCUREMENT SERVICES DIVISION

**Bid Number: B081181007**

## INVITATION FOR BID And Contract Specifications

**FOR:** California Air Resources Board Diesel Particulate Filters  
Including Installation

***Bids Must Be Received Prior To 2:00 P.M. on August 22, 2007***

**Bids Must Be Submitted To:** City Clerk's Office  
915 "I" Street, First Floor  
Sacramento, CA 95814

Pre-Bid Conference: Not Applicable  
Mandatory:  Yes  
 No

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### NAME AND ADDRESS OF BIDDER SUBMITTING THIS BID: (Bidder to complete the following information)

Name of Bidder: Ironman

Address: 2535 Anselmo Drive

City, State, Zip Code: Corona, CA 92879

Phone Number: 951-735-3710

Email Address: sfetters@ironmanparts.com

BID

BID NO. B081181007

FOR SERVICES/SUPPLIES: California Air Resources Board Diesel Particulate Filters Including Data logging and Installation

To the City of Sacramento:

The undersigned bidder (hereafter referred to as the "bidder" or the "Contractor") submits the attached bid, and certifies as follows: that the only persons or parties interested in this bid as principals are those named herein as bidder; that this bid is made without collusion with any other person, firm, or corporation; that in submitting this bid the bidder has examined all of the Contract Documents identified below; that the bidder proposes and agrees that if this bid is accepted, the bidder will execute and fully perform the contract for which bids are called; that the bidder shall perform all the work and/or furnish all the materials specified in the Contract Documents, in the manner and time therein prescribed, and according to the requirements as therein set forth; and that the bidder shall take in full payment therefor, the prices set forth in the attached Pricing Schedule.

CONTRACT DOCUMENTS


Performance of and payment for the contract for which bids are called shall be subject to all terms and conditions of the Invitation for Bid, the Bid Instructions and Requirements, the Bid, the Pricing Schedule(s), the Items Requiring Bidder Response, the Required Submittals, the General Conditions, and any Addenda, Amendments, Special Provisions, Specifications, Plans or other requirements applicable to performance of the work and/or furnishing the materials specified herein. Such documents, referred to herein as the "Contract Documents," are fully incorporated herein by this reference and are collectively referred to as the "Contract". By submitting this Bid, the Contractor agrees to fully perform each and every provision of the Contract, provided that City awards the Contract to the Contractor, and provided further that City shall have no obligation hereunder unless and until such award is made. Contractor shall not make any changes to this form without City's written approval, and any changes made without such approval shall be void.

To Be Filled Out By Bidder

NAME OF CONTRACTOR: Ironman  
ADDRESS: 2535 Anselmo Drive, Corona, CA 92879  
PHONE #: 951-735-3710 FAX #: 951-734-5833  
STATE TAX I.D. #: -- FED. TAX I.D. #: 33-0037535

City of Sacramento Business Operation Tax Certificate #: To be provided upon receipt of  
(Contract award will not be processed if Certificate Number is missing) award notification.

TYPE OF BUSINESS ENTITY (check one):  Individual/Sole Proprietor  Partnership  
 Corporation  Limited Liability Company  
 Other (please specify: \_\_\_\_\_)

BY: (signature of authorized person)   
PRINT NAME: Craig Phillips  
TITLE: President

Note: All information submitted in or in connection with a bid is submitted under penalty of perjury. The City shall have the right to terminate at any time any contract awarded pursuant to a bid that contains false information.

**PRICING SCHEDULE(S)**  
**CITY OF SACRAMENTO**  
**SACRAMENTO, CALIFORNIA**

For furnishing the City of Sacramento with California Air Resources Board (CARB) verified diesel particulate filters including data logging and installation as required in accordance with the provisions and specifications contained herein.

The bidder's price shall include the following; cost of DPF, DMF,DOC Horizon or Clear Longview devices, labor to install, all necessary hardware to perform the installation, taxes, travel time, hazardous material fees, installation of the required decals on the vehicle for CARB Compliance and the cost to data log the vehicle.

The bid items listed are for evaluation purposes only. The quantities and items specified estimates of the City's requirements. It is the intent of this bid to provide an award for the City's requirements. Vendor agrees to furnish more or less than the estimates at the values quoted in accordance with availability of funds and actual needs as they occur throughout the contract period.

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Unit cost</u>	<u>Extension</u>
1.	5	Level 1 DOC, include installation and data logging	\$ <u>3275.89</u>	\$ <u>16,379.45</u>
		Proposed Manufacturer: <u>Donaldson</u>		
2.	15	Level 2 DMF, include installation and data logging	\$ <u>6257.25</u>	\$ <u>93,858.75</u>
		Proposed Manufacturer: <u>Donaldson</u>		
3.	30	Level 3 DPF, include installation and data logging.	\$ <u>8888.17</u>	\$ <u>266,645.10</u>
		Proposed Manufacturer: <u>Donaldson</u>		
4.	25	Clear Longview device, include Installation and data logging	\$ <u>20084.38</u>	\$ <u>502,109.50</u>
		Proposed Manufacturer: <u>Cleaire</u>		
5.	20	Clear Horizon device, include Installation and data logging.	\$ <u>14668.19</u>	\$ <u>293,363.80</u>
		Proposed Manufacturer: <u>Cleaire</u>		
6.	50	Cleaning of DPF, MF and DOC	\$ <u>400.00</u>	\$ <u>20,000.00</u>
			<b>Total</b>	\$ <u>1,192,356.60</u>

**Note: A 5% maximum price increase may be allowed for the second year and third year of the contract**

**ITEMS REQUIRING BIDDER RESPONSE**

**NOTE: Bidders must provide responses where indicated to the following items. Failure to provide a response to each of the items in this section may be grounds for rejection of bid.**

**1. SBE/EBE FIVE PERCENT (5%) BID EVALUATION PREFERENCE**

On February 9, 1999, the Sacramento City Council adopted an Emerging and Small Business Development program to provide enhanced opportunities for the participation of small business enterprises (SBEs) and emerging business enterprises (EBEs) in the City's contracting and procurement activities. Any bid or quotation submitted by a firm that is certified as a SBE by the City of Sacramento, or that is certified as an EBE by the City of Sacramento, will receive a five percent (5%) bid evaluation preference for the purpose of determining the lowest responsible bidder. If, after applying the 5% bid evaluation preference, the bid of an SBE/EBE firm receiving such preference is determined to be the lowest responsible bid, the award will be made for the actual amount bid. To receive this bid evaluation preference, a firm must be certified as a SBE or EBE at the time of bid opening. Questions regarding eligibility for SBE/EBE certification should be addressed to the City of Sacramento Office of Small Business Development at (916) 808-6747.

**A. SMALL BUSINESS ENTERPRISE (SBE) CERTIFICATION**

Is the firm submitting the bid certified by the City of Sacramento as a small business enterprise? Check the appropriate block below:

- YES** - the firm submitting the bid is certified by the City of Sacramento as a small business enterprise.
- NO** - the firm submitting the bid is not certified by the City of Sacramento as a small business enterprise.

If the response to the above is YES, provide the City of Sacramento Certification Number Application for SBE has been submitted.

**B. EMERGING BUSINESS ENTERPRISE (EBE) CERTIFICATION**

Is the firm submitting the bid certified by the City of Sacramento as an *emerging* business enterprise? Check the appropriate block below:

- YES** - the firm submitting the bid is certified by the City of Sacramento as an emerging business enterprise.
- NO** - the firm submitting the bid is not certified by the City of Sacramento as an emerging business enterprise.

If the response to the above is YES, provide the City of Sacramento Certification Number: \_\_\_\_\_.

**2. LOCAL BUSINESS SALES/USE TAX DEDUCTION**

The Sacramento City Code requires the City to identify those bids that are subject to the City's local sales or use tax under the provisions of Part 1.5 of Division 2 of the California Revenue and Taxation Code and Chapter 3.24 of the Sacramento City Code. The lowest responsible bidder shall be determined after the amount of local sales or use tax that would be received by the City is deducted from such bids. The current rate at which such local sales or use tax is received by the City is one percent (1%). Therefore, in evaluating bids to determine the lowest responsible bidder, bids that are subject to this tax at the time of bid opening shall have an amount equal to one percent (1%) of the taxable total deducted from the bids. This deduction shall be in addition to the application of any bid price preferences or other deductions authorized by the City Code. Such deductions shall be made for bid evaluation purposes only. Contract awards shall be made at the actual bid amount.

In order to identify those bids that are subject to the City's local sales or use tax, all bidders shall respond to the following:

- 1) Does the bidder have fixed offices or locally taxable distribution points within the boundaries of the City of Sacramento? \_\_\_ Yes; or X No
- 2) If the answer to Question #1 is "Yes":
  - a) Provide the address of the bidder's fixed offices or locally taxable distribution point(s):

\_\_\_\_\_

\_\_\_\_\_

- b) Provide the bidder's current, valid City of Sacramento Business Operations Tax Certificate Number:
- \_\_\_\_\_

**3. DELIVERY GUARANTEE**

Contractor guarantees delivery within 117-165 days after receipt of order (ARO).

**4. PAYMENT DISCOUNT**

Will you offer a prompt payment discount? Yes [ ] or No [x] (Net 30 days)

If Yes, the Payment Discount is \_\_\_% for payment within \_\_\_ calendar days, which will be computed from the date delivery is made and is accepted by the City, or the date a proper invoice is received, whichever is later.

PAYMENT DISCOUNTS SHALL BE CONSIDERED IN AWARDING THE CONTRACT AS SET FORTH IN THE "BID INSTRUCTIONS AND REQUIREMENTS", PARAGRAPH 11 (ENTITLED "PAYMENT DISCOUNTS").

DATE BID OPENED <u>8-22-07</u>
EMPLOYEE INITIALS <u>VIM</u>
MARK ONE BOX FOR EACH ITEM ONLY
<b>BID SECURITY</b>
<input checked="" type="checkbox"/> NONE REQUIRED
<input type="checkbox"/> PROPERLY SIGNED
<b>BID DEPOSIT TYPE</b>
<input type="checkbox"/> BID BOND
<input type="checkbox"/> CALIF. BANK CASHIER'S CHECK
<input type="checkbox"/> CERTIFIED CHECK
<input type="checkbox"/> CASH
<input type="checkbox"/> CALIF. BANK MONEY ORDER
<b>AFTER AWARD OF BID</b>
<input type="checkbox"/> SECURITY RETURNED
<input type="checkbox"/> SECURITY ACCEPTED
EMPLOYEE INITIALS _____
DATE _____

# EXHIBIT 1

Attachment A

## DECLARATION OF COMPLIANCE Equal Benefits Ordinance

Tronman  
Name of Contractor

2535 Anselmo Drive, Corona, CA 92879  
Address

The above named contractor ("Contractor") hereby declares and agrees as follows:

1. I have read and understand the Non-Discrimination In Employee Benefits By City Contractors Ordinance ("Ordinance") provided to me by the City of Sacramento ("City") in connection with the City's request for proposals or other solicitations for the performance of services, or for the provision of commodities, under a City contract or agreement ("Contract").
2. As a condition of receiving the City Contract, I agree to fully comply with the requirements of the Ordinance, codified as Chapter 3. 54 of the Sacramento City Code.
3. If the face amount of this City Contract is less than \$25,000, as a condition of receiving this Contract, I agree to notify the City in writing if the aggregate value of the City Contract referenced herein, after changes, modifications, or similar actions, equals or exceeds \$25,000 in total value.
4. I understand, to the extent that such benefits are not preempted or prohibited by federal or state law, employee benefits covered by the Ordinance, are any of the following:
  - a. Bereavement Leave
  - b. Disability, life, and other types of insurance
  - c. Family medical leave
  - d. Health benefits
  - e. Membership or membership discounts
  - f. Moving expenses
  - g. Pension and retirement benefits
  - h. Vacation
  - i. Travel benefits
  - j. Any other benefit offered to employees

I agree that should I offer any of the above listed employee benefits, that I will offer those benefits, without discrimination between employees with spouses and employees with domestic partners, and without discrimination between the spouses and domestic partners of such employees.

# EXHIBIT 1

## Attachment A

### DECLARATION OF COMPLIANCE Equal Benefits Ordinance

5. I understand that I will not be considered to be discriminating in the provision or application of employee benefits under the following conditions or circumstances:

- a. In the event that the actual cost of providing a benefit to a domestic partner or spouse, exceeds the cost of providing the same benefit to a spouse or domestic partner of an employee, I will not be required to provide the benefit, nor shall it be deemed discriminatory, if I require the employee to pay the monetary difference in order to provide the benefit to the domestic partner or to the spouse.
- b. In the event I am unable to provide a certain benefit, despite taking reasonable measures to do so, if I provide the employee with a cash equivalent, I will not be deemed to be discriminating in the application of that benefit.
- c. If I provide employee benefits neither to employee's spouses nor to employee's domestic partners.
- d. If I provide employee benefits to employees on a basis unrelated to marital or domestic partner status.
- e. If I submit, to the Program Coordinator, written evidence of making reasonable efforts to end discrimination in employee benefits by implementing policies which are to be enacted before the first effective date after the first open enrollment process following the date the Contract is executed with the City.

I understand that any delay in the implementation of such policies may not exceed one (1) year from the date the Contract is executed with the City, and applies only to those employee benefits for which an open enrollment process is applicable.

- f. Until administrative steps can be taken to incorporate, in the infrastructure, nondiscrimination in employee benefits

The time allotted for these administrative steps will apply only to those employee benefits for which administrative steps are necessary and may not exceed three (3) months from the date the Contract is executed with the City.

- g. Until the expiration of a current collective bargaining agreement(s) where, in fact, employee benefits are governed by a collective bargaining agreement(s).
- h. I take all reasonable measures to end discrimination in employee benefits by either requesting the union(s) involved agree to reopen the agreement(s) in order for me to take whatever steps are necessary to end discrimination in employee benefits or by my ending discrimination in employee benefits without reopening the collective bargaining agreement(s).

# EXHIBIT 1

## Attachment A

### DECLARATION OF COMPLIANCE Equal Benefits Ordinance

- i. In the event I cannot end discrimination in employee benefits despite taking all reasonable measures to do so, I provide a cash equivalent to eligible employees for whom employee benefits (as listed previously), are not available.

Unless otherwise authorized in writing by the City Manager, I understand this cash equivalent must begin at the time the union(s) refuse to allow the collective bargaining agreement(s) to be reopened or no longer than three (3) months from the date the Contract is executed with the City.

6. I understand that failure to comply with the provisions of Section 5. (a) through 4. (i), above, will subject me to possible suspension and/or termination of this Contract for cause; repayment of any or all of the Contract amount disbursed by the City; debarment for future contracts until all penalties and restitution have been paid in full; deemed ineligible for future contracts for up to two (2) years; the imposition of a penalty, payable to the City, in the sum of \$50.00 for each employee, for each calendar day during which the employee was discriminated against in violation of the provisions of the Ordinance.
7. I understand and do hereby agree to provide each current employee and, within ten (10) days of hire, each new employee, of their rights under the Ordinance. I further agree to maintain a copy of each such letter provided, in an appropriate file for possible inspection by an authorized representative of the City. I also agree to prominently display a poster informing each employee of these rights.
8. I understand that I have the right to request an exemption to the benefit provisions of the Ordinance when such a request is submitted to the Procurement Services Division, in writing with sufficient justification for resolution, prior to contract award.

I further understand that the City may request a waiver or exemption to the provisions or requirements of the Ordinance, when only one contractor is available to enter into a contract or agreement to occupy and use City property on terms and conditions established by the City; when sole source conditions exist for goods, services, public project or improvements and related construction services; when there are no responsive bidders to the EBO requirements and the contract is for essential goods or services; when emergency conditions with public health and safety implications exist; or when the contract is for specialized legal services if in the best interest of the City.

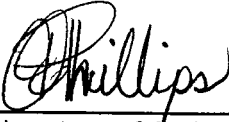
9. In consideration of the foregoing, I shall defend, indemnify and hold harmless, the City, its officers and employees, against any claims, actions, damages, costs (including reasonable attorney fees), or other liabilities of any kind arising from any violation of the City's Equal Benefits Requirements or of the Ordinance by me.

**EXHIBIT 1**

Attachment A

**DECLARATION OF COMPLIANCE  
Equal Benefits Ordinance**

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am authorized to bind the Contractor to the provisions of this Declaration.

  
\_\_\_\_\_  
Signature of Authorized Representative

08/21/2007  
\_\_\_\_\_  
Date

Craig Phillips  
\_\_\_\_\_  
Print Name

President  
\_\_\_\_\_  
Title



# On-Road Applications Product Warranty

August 2006

## Product Warranty

### **YOUR WARRANTY RIGHTS AND OBLIGATIONS**

Cleaire Advanced Emission Controls, LLC warrants the diesel emission control system in the application for which it is sold or leased to be free from defects in design, materials, workmanship, or operation of the diesel emission control system which cause the diesel emission control system to fail to conform to the emission control performance level it was verified to, or to the requirements in the California Code of Regulations, Title 13, Sections 2700 to 2706, and 2710, for the periods of time listed in Table 1, provided there has been no abuse, neglect, or improper maintenance of your diesel emission control system, vehicle or equipment, as specified in the owner's manuals. Where a warrantable condition exists, this warranty also covers the engine from damage caused by the diesel emission control system, subject to the same exclusions for abuse, neglect or improper maintenance of your vehicle or equipment. Please review your owner's manual for other warranty information. Your diesel emission control system may include a core part (e.g., particulate filter, diesel oxidation catalyst, selective catalytic reduction converter) as well as hoses, connectors, a backpressure monitor (if applicable), and other emission-related assemblies. Where a warrantable condition exists, Cleaire will repair or replace your diesel emission control system at no cost to you including diagnosis, parts, and labor.

### **WARRANTY COVERAGE**

For an engine used in an application listed in Table 1, the warranty period will be the years or hours or miles of operation shown in Table 1, whichever occurs first. If any emission-related part of your diesel emission control system is defective in design, materials, workmanship, or operation of the diesel emission control system thus causing the diesel emission control system to fail to conform to the emission control performance level it was verified to, or to the requirements in the California Code of Regulations, Title 13, Sections 2700 to 2706, and 2710, within the warranty period, as defined above, Cleaire will repair or replace the diesel emission control system, including parts and labor.

In addition, Cleaire will replace or repair the engine components to the condition they were in prior to the failure, including parts and labor, for damage to the engine proximately caused by the verified diesel emission control strategy. This also includes those relevant diagnostic expenses in the case in which a warranty claim is valid. Cleaire may, at its option, instead pay the fair market value of the engine prior to the time the failure occurs.

### **OWNER'S WARRANTY RESPONSIBILITY**

As the vehicle, engine, or equipment owner, you are responsible for performing the required maintenance described in your owner's manual. Cleaire recommends that you retain all maintenance records and receipts for maintenance expenses for your vehicle, engine, or equipment, and diesel emission control system. If you do not keep your receipts or fail to perform all scheduled maintenance, Cleaire may have grounds to deny warranty coverage. You are responsible for presenting your vehicle, equipment, or engine, and diesel emission control system to a Cleaire-authorized dealer as soon as a problem is detected. The warranty repair or replacement should be completed in a reasonable amount of time, not to exceed 30 days. If a replacement is needed, this may be extended to 90 days should a replacement not be available, but must be performed as soon as a replacement becomes available. If you have questions regarding your warranty rights and responsibilities, you should contact Cleaire at 1-800-308-2111 or the California Air Resources Board at 9528 Telstar Avenue, El Monte, CA 91731, or (800) 363-7664, or electronic mail: [helpline@arb.ca.gov](mailto:helpline@arb.ca.gov).

## Installation Warranty

### **YOUR WARRANTY RIGHTS AND OBLIGATIONS**

The Cleaire-authorized installer warrants that the installation of the diesel emission control system is free from defects in workmanship or materials which cause the diesel emission control system to fail to conform to the emission control performance level it was verified to, or to the requirements in the California Code of Regulations, Title 13, Sections 2700 to 2706. The warranty period and the extent of the warranty coverage provided by the Cleaire-authorized installer is the same as the product warranty provided by Cleaire, and the same exclusions apply.

### **OWNER'S WARRANTY RESPONSIBILITY**

As the vehicle, engine, or equipment owner, you are responsible for presenting your vehicle, engine, or equipment, and diesel emission control system to the Cleaire-authorized installer as soon as a problem with the installation is detected.

If you have questions regarding your warranty rights and responsibilities, you should contact a Cleaire-authorized dealer, or Cleaire at 1-800-308-2111, or the California Air Resources Board at 9528 Telstar Avenue, El Monte, CA 91731, or (800) 363-7664, or electronic mail: [helpline@arb.ca.gov](mailto:helpline@arb.ca.gov).

**Warranty Clarifications** (Which do not limit or modify the provisions of the above warranty in any way)

The warranty above is the sole warranty made by Cleaire Advanced Emission Controls, LLC. There are no other warranties, expressed or implied, or of merchantability or fitness for a particular purpose.

For the purpose of this warranty, abuse or neglect includes vehicle accidents, ignoring the system indicator lights, blending lubricating oil with fuel, or any engine failure or condition that allows excess lubricating oil, coolant, contaminants or debris to enter the exhaust system. The owner shall not use any fuel additive or lube oil additive that is not approved for use in diesel engines equipped with catalytic mufflers.

Cleaire is not responsible for incidental or consequential damages, which include, but are not limited to fines, theft, vandalism, or collisions. The owner is responsible for incidental costs such as communication expenses, meals, and lodging incurred by owner or employees of owner as a result of a warrantable condition.

The verified diesel emission control system must be installed and serviced by Cleaire-authorized personnel. Installation or service by unauthorized personnel may result in a denial of warranty coverage.

**Table 1**

Engine Type	Engine Size	Warranty Period
<b>On-Road</b>	Light heavy-duty, 70 to 170 hp, Gross Vehicle Weight Rating (GVWR) less than 19,500 lbs.	5 years or 150,000 miles
	Medium heavy-duty, 170 to 250 hp, GVWR from 19,500 lbs. to 33,000 lbs.	
	Heavy heavy-duty, exceeds 250 hp, GVWR exceeds 33,000 lbs.	
	Heavy heavy-duty, exceeds 250 hp, GVWR exceeds 33,000 lbs., and the truck is: 1. Typically driven over 100,000 miles per year, and 2. Has less than 300,000 miles on the odometer at the time of installation.	2 years, unlimited miles



# California Diesel Retrofit Program Diesel Particulate Filtration (DPF) and Low-Temperature Filter (LTF) Muffler Limited Warranty for On-Road Engines

**The Donaldson warranty meets the requirements  
of California's Diesel Retrofit Program.**

## **Your Warranty Rights & Obligations**

Donaldson must warrant the diesel emission control system in the application for which it is sold or leased to be free from defects in design, materials, workmanship, or operation of the diesel emission control system which cause the diesel emission control system to fail to conform to the emission control performance level it was verified to, or to the requirements in the California Code of Regulations, Title 13, Sections 2700 to 2706, and 2710, for the periods of time listed below, provided there has been no abuse, neglect, or improper maintenance of your diesel emission control system, vehicle or equipment, as specified in the owner's manuals. Where a warrantable condition exists, this warranty also covers the engine from damage caused by the diesel emission control system, subject to the same exclusions for abuse, neglect or improper maintenance of your vehicle or equipment. Please review your owner's manual for other warranty information. Your diesel emission control system may include a core part (e.g., particulate filter, diesel oxidation catalyst, selective catalytic reduction converter) as well as hoses, connectors, a back pressure monitor (if applicable), and other emission-related assemblies. Where a warrantable condition exists, Donaldson will repair or replace your diesel emission control system at no cost to you including diagnosis, parts, and labor.

## **Warranty Coverage**

Warranty coverage begins on the date and mileage the product is purchased by the user and expires when the specified number of years or miles has passed, whichever occurs first.

<b>Medium Heavy-Duty</b> (170-250 hp / 19,500-33,000 lbs. GVWR)	5 years or 100,000 miles
<b>Heavy Heavy-Duty</b> (> 250 hp / > 33,000 lbs. GVWR)	5 years or 150,000 miles
<b>Heavy Heavy-Duty</b> (> 250 hp / > 33,000 lbs. GVWR) Typically driven 100,000 miles per year and less than 300,000 miles on the odometer at time of installation	2 years, unlimited miles

If any emission-related part of your diesel emission control system is defective in design, materials, workmanship, or operation of the diesel emission control system thus causing the diesel emission control system to fail to conform to the emission control performance level it was verified to, or to the requirements in the California Code of Regulations, Title 13, Sections 2700 to 2706, and 2710, within the warranty period, as defined above, Donaldson will repair or replace the diesel emission control system, including parts and labor. In addition, Donaldson will replace or repair the engine components to the condition they were in prior to the failure, including parts and labor for damage to the engine proximately caused by the verified diesel emission control strategy. This also includes those relevant diagnostic expenses in the case in which a warranty claim is valid. Donaldson may, at its option, instead pay the fair market value of the engine prior to the time the failure occurs.

Donaldson

## Owner's Warranty Responsibility

As the (vehicle, engine, equipment) owner, you are responsible for performing the required maintenance described in your owner's manual. Donaldson recommends that you retain all maintenance records and receipts for maintenance expenses for your vehicle, engine, or equipment, and diesel emission control system. If you do not keep your receipts or fail to perform all scheduled maintenance, Donaldson may have grounds to deny warranty coverage. You are responsible for presenting your vehicle, equipment, or engine, and diesel emission control system to a Donaldson dealer as soon as a problem is detected. The warranty repair or replacement should be completed in a reasonable amount of time, not to exceed 30 days. If a replacement is needed, this may be extended to 90 days should a replacement not be available, but must be performed as soon as a replacement becomes available. Failure to complete the warranty information requested by Donaldson within 30 days of installation of the diesel emission control system may void this warranty.

### Actions and Improper Maintenance That May Void Your Warranty

Prior to installing any DPF or LTF unit, a profile sheet must be completed by the equipment owner and approved by Donaldson. Failure to obtain this approval may void this warranty.

The following conditions are considered to be abuse, neglect or improper maintenance that may void your warranty:

- Failure to follow Original Equipment Manufacturer (OEM) maintenance and operating procedures. Proper OEM maintenance and operating procedures are understood to be those procedures recommended by the OEM to ensure engine longevity and operation.
- Excessive particulate emissions due to poor engine operation and maintenance.
- Misapplication of the DPF or LTF unit to an engine model or to a duty cycle other than that for which the DPF or LTF unit is designed and approved.
- Improper installation of the DPF or LTF unit (strict adherence to the Donaldson owners manual is required).
- Alterations or attempted repairs.
- Progressive engine failure that allows lube oil, fuel or coolant to be present in the engine exhaust, in excess of OEM specifications.
- Use of fuel:
  - (a) other than that for which the engine is calibrated or other than recommended by Donaldson.
  - (b) containing other than ultra low sulfur diesel or not approved in writing by Donaldson, or fuel other than that which is specifically required to achieve the emissions required by the DPF or LTF unit.
  - (c) blended fuel with lube oil, kerosene, fuel additives or other materials not approved in writing by Donaldson.
- Excessive lube oil consumption.
- Physical damage caused by misuse, abuse or road hazards including (but not limited to) dents, cuts or fractures of the DPF or LTF unit.
- Damage caused by improper cleaning procedures (failure to adhere to Donaldson recommended cleaning guidelines).
- Failures or damage caused by mounting system failures.
- Damage to the catalyst or plugging caused by water entry.
- Failure to return the warranty registration card within 30 days of installation.

If you have questions regarding your warranty rights and responsibilities, you should contact Donaldson Emissions Customer Service at 1-866-675-2847 or the California Air Resources Board at 9528 Telstar Avenue, El Monte, CA 91731, or 1-800-363-7664, or electronic mail: [helpline@arb.ca.gov](mailto:helpline@arb.ca.gov).



# Donaldson.

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Donaldson Company, Inc. reserves the  
right to change or discontinue any model or  
specification at any time and without notice.



**Owner's Manual  
Family of Diesel Oxidation  
Catalyst (DOC) Mufflers**



**E M I S S I O N S**

Thank you for purchasing the Donaldson DOC Muffler to reduce diesel particulate emissions.

This owner's manual includes pre-installation requirements, installation instructions, warranty activation procedures and maintenance procedures.

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Read each section carefully prior to installing your Donaldson DOC Muffler. To highlight important topics or steps regarding the installation, operation and maintenance, pay special attention to the call outs in the NOTE and CAUTION boxes.

Example:

<b>NOTE</b>	Regulations Requirement
Regulations require a product identification tag be installed on the engine in a clear, visible location.	

Example:

	<b>CAUTION!</b> Rust, Corrosion & Soot on Existing Exhaust Tubing
If you see any evidence of rust or corrosion on existing tubing between the turbocharger and DOC muffler inlet, replace with new aluminized steel tubing. If reusing existing exhaust tubing, banging and tapping on the tubing may dislodge soot. Be sure to clean out any pipes prior to installing new components.	

Consult your Donaldson distributor, dealer or Donaldson if you have questions regarding the installation or warranty.

## Introduction

Donaldson's DOC Muffler is designed to reduce harmful emissions from in-use diesel engines. Besides reducing diesel particulate matter emissions by 15-30%, diesel oxidation catalysts (DOC's) are also effective at reducing hydrocarbon emissions. California has classified several hydrocarbon emissions as toxic air contaminants.

DOC Mufflers are extremely reliable, cost-effective and easy to apply and provide substantial benefits in air quality. DOC Mufflers are also maintenance-free with normal operation. Expanded use of DOC technology on a retrofit basis is expected during the next decade.

For optimum performance, follow Donaldson's simple installation recommendations.

<b>NOTE</b>	Follow installation requirements
Installations must meet Donaldson requirements to obtain full warranty coverage.	

## Pre-Installation Requirements

Your Donaldson DOC Muffler includes the following parts:

Qty.	Description
1	DOC Muffler
1	Documentation package that includes this owner's manual, a warranty registration card, warranty statement and engine tag (for CARB requirement).

Donaldson's pre-installation requirements are provided below. In order to maximize DOC muffler performance and life, installation must meet these requirements.

<b>NOTE</b>	Engine Must Meet OEM Specifications
The engine must be inspected by a qualified mechanic to verify the engine is operating within the engine OEM's specifications. If the engine does not meet specifications, necessary repairs must be made prior to DOC Muffler installation. The mechanic must document compliance on the warranty registration form. Failure to comply may void the warranty. The warranty and warranty registration card are separate documents in the documentation package.	

## Selecting the Right DOC Muffler

Be sure you have selected the proper DOC Muffler model. Application of the wrong model will affect exhaust system backpressure. Failure to apply the proper model may cause engine damage and void the warranty. If engine horsepower exceeds the rating of a single DOC Muffler, dual DOC Mufflers will be required.

## Inspect Mounting Hardware

DOC Mufflers weigh approximately 50% more than traditional OEM truck mufflers (45 lbs. vs. 30 lbs. [20.4 kg vs 13.6 kg]). Inspect any mounting system hardware intended for reuse to ensure it is in good condition and can adequately support the added weight. Look for signs of rust, corrosion or fatigue. Do not reuse suspect components. Heavy-duty components should be used.

<b>NOTE</b>	Inspect DOC Muffler Mounting Hardware
A DOC Muffler weighs approximately 50% more than a traditional OEM truck muffler. The mounting system should be inspected to ensure it is in good condition and can adequately support the added weight. Inspect all hardware intended for reuse for rust, corrosion or fatigue. Replace all questionable components with heavy-duty components.	

## Minimize Exhaust Tubing Lengths


The catalyst temperature has an affect on emissions reduction performance. To optimize emissions reduction, the DOC Muffler inlet must be less than 15 ft. (4.6m) downstream from the turbocharger outlet flange when measured along the piping center line. Placement beyond 15 ft. (4.6m) may result in a plugged catalyst and void the warranty.

The catalyst should be mounted as close to the engine as possible, but must be isolated from engine vibration. Do not hard-mount the DOC Muffler directly to the engine.

<b>NOTE</b>	Mount the DOC Muffler Less than 15 ft. (4.6m) from the turbocharger
Mount the DOC Muffler less than 15 Ft. (4.6m) downstream from the turbocharger outlet. Mounting the DOC Muffler beyond this distance may cause plugging and void the warranty.	

### Minimize Exhaust Leaks and Plugging

To maximize emission aftertreatment effectiveness, exhaust tubing should be structurally sound and leak-free. Inspect the exhaust tubing for leaks due to damage or corrosion, and replace defective components. Also look for flaking due to corrosion and/or soot build-up. Loose contaminants can be blown onto the catalyst face and cause plugging, increased backpressure and degraded engine performance.

	<b>CAUTION! Rust, Corrosion and Soot on Existing Exhaust Tubing</b>
<p>If you see any evidence of rust or corrosion on existing tubing between the turbocharger and DOC muffler inlet, replace with new aluminized steel tubing. If reusing existing exhaust tubing, banging and tapping on the tubing may dislodge soot. Be sure to clean out any pipes prior to installing new components. Operate engine at high idle to blow out exhaust pipes prior to the installation of the DOC Muffler. Protect yourself and others from loud straight pipe noise.</p>	

### DOC Muffler Warranty

The statement of warranty for the DOC Muffler can be found in the documentation package.

### Activating the Warranty

A Warranty Registration Card is included in the documentation package. Fill in all the information requested and answer all the questions immediately after completing the installation and return the card to Donaldson via the postage-paid card. Failure to return the warranty registration card within 30 days of installation may void the warranty.

<b>NOTE</b>	<b>Submit Warranty Information</b>
<p>Failure to complete the warranty information requested by Donaldson within 30 days of installation of the emission control system may void this warranty.</p>	

### DOC Muffler Installation

The following section includes separate procedures for vertical and horizontal installations. Please use the procedure that matches your current muffler orientation.

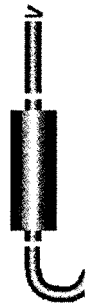
Make sure to review all pre-installation requirements before proceeding with the installation.

<b>NOTE</b>
<p>DOC Mufflers may plug if the engine is not properly maintained. This is especially true when operated under low-load or low ambient temperature conditions, idled for extended periods of time or if the engine is not properly calibrated for the specific fuel-type being used. To prevent the occurrence of plugging, engine problems must be resolved prior to installing a DOC Muffler.</p>

### Vertical Installation


#### Remove the Existing Muffler

- (1) Loosen stack clamp at muffler outlet (top). Remove stack and clamp.
- (2) Loosen tubing clamp at muffler inlet (bottom).
- (3) Loosen clamps on flex tubing. Remove clamps, flex and elbow.
- (4) Remove muffler and heat shield mounting bands.



#### Install the DOC Muffler

- (1) Inspect the mounting brackets, bands, supports and/or stanchion for any damage, cracks or corrosion. Mounting components must be strong enough to adequately support the additional 15 lbs. (7 kg) weight. Replace any existing mounting parts that appear rusted, damaged or of questionable strength with heavy-duty parts.
- (2) Place muffler/heat shield mounting bands on DOC Muffler body and finger-tighten. Locate DOC Muffler on mast in position of original muffler. Secure on mast with muffler mounting bands.


	<b>CAUTION! Do Not Overtighten Bands or Clamps on Muffler Body</b>
<p>The catalytic core inside could be damaged if you deform the muffler body by overtightening clamps.</p>	

- (3) Position flex tubing and clamps onto exhaust tube. Do not tighten clamps until all tubing is assembled.

- (4) Position inlet elbow and muffler inlet clamp. Locate flex tube so that there are equal lengths of rigid tubing (within the flex) on both ends. Tighten clamps to secure flex tubing and inlet elbow.

<b>NOTE</b>
Excessive force on the inlet and outlet piping in conjunction with vehicle vibration can result in stress cracking where the pipe or pipe supports contact the DOC muffler inlet. Failures caused by excessive force are a result of improper installation and may not be covered under the warranty.

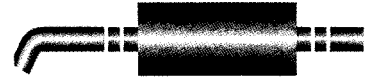
- (5) Position clamp over DOC Muffler outlet tube. Insert stack into the muffler outlet and tighten securely. Install a rain cap on all applications to prevent water damage.

	<b>CAUTION!</b> Water from Rain and Truck Washing Can Poison the Catalyst
Water can also damage the catalyst core retention material in the DOC Muffler. Vertical tail pipes must be fitted with rain cap or curved outlets.	

- (6) Install heat shield. Ensure DOC Muffler/heat shield mounting bands are secure.
- (7) Verify that all bolts and fasteners have been sufficiently tightened.
- (8) Operate vehicle and check for exhaust leaks. Repair any leaks.
- (9) Turn off the engine.
- (10) To meet CARB requirements, permanently attach the product identification tag (supplied in documentation package) in a clearly visible location on the engine. CARB regulations require a product identification tag be permanently installed on the engine in a clear, visible location. Application of the engine tag is not necessary for U.S. EPA regulations.

<b>NOTE</b>	CARB Requirement
California ARB regulations require a product identification tag be permanently installed on the engine in a clear, visible location.	

- (1) Fill out and return the Warranty Registration Card (included in the documentation package in the DOC Muffler box). Failure to return the warranty registration card within 30 days of installation may void the warranty.



## Horizontal Installation

### Remove the Existing Muffler

- (1) Loosen clamp at muffler outlet. Remove clamp and tailpipe.
- (2) Remove clamp at muffler inlet.
- (3) Loosen muffler mounting bands and remove muffler.

### Install the DOC Muffler


- (1) Inspect the mounting brackets, bands, hangers, and supports for any damage, cracks or corrosion. Mounting components must be strong enough to adequately support the additional 15 lbs. (6.8 kg) weight. Replace any existing mounting parts that appear rusted, damaged or of questionable strength with heavy-duty parts.

<b>NOTE</b>	Mounting System Space Allowance
Allow 1" (25mm) space for engine movement and thermal expansion around the DOC Muffler.	


- (2) If the application uses a vertical tailpipe, drill a 1/4" (6mm) drain hole 12-18" (305-452mm) from the outlet end of the DOC Muffler.

<b>NOTE</b>	Drain Hole Required on Horizontal Mount with a Vertical Tailpipe
Horizontally-mounted DOC Mufflers with a vertical tailpipe must have a 0.25" (6mm) diameter drain hole drilled through the lowest point of the body, 12-18" (305-452mm) from the outlet end of the DOC Muffler. Rain and truck wash water can poison the catalyst, reducing emission performance. Water can also damage the catalyst core retention material in the DOC Muffler. Vertical tail pipes should be fitted with rain caps or curved outlets.	

- (3) Position the DOC Muffler in the mounting bands on muffler and mount in position. Position DOC Muffler so drain hole is at the bottom. Be sure the mounting bands do not cover the drain hole.
- (4) Tighten clamp on muffler inlet.

	<b>CAUTION!</b> Do Not Overtighten Bands or Clamps on Muffler Body
The catalytic core inside could be damaged if you deform the muffler body by overtightening clamps.	

- 5.) Install tailpipe and secure clamp on muffler outlet/ tailpipe joint.

	<b>CAUTION!</b> Avoid Rigid Mounting of the DOC Muffler
The original equipment muffler should have flexible hangers installed to allow for thermal expansion. If your system does not have flexible hangers they should be installed.	

- (6) Verify that all bolts and fasteners have been sufficiently tightened.
- (7) Operate vehicle and check for exhaust leaks. Repair any leaks.
- (8) Turn off the engine.
- (9) To meet CARB requirements, permanently attach the product identification tag (supplied in documentation package) in a clearly visible location on the engine. CARB regulations require a product identification tag be permanently installed on the engine in a clear, visible location. Application of the engine tag is not necessary for U.S. EPA regulations.

<b>NOTE</b>	CARB Requirement
California ARB regulations require a product identification tag be permanently installed on the engine in a clear, visible location.	

- (10) Fill out and return the Warranty Registration Card (included in the documentation package in the DOC Muffler box). Failure to return the warranty registration card within 30 days of installation may void the warranty.

### Activating the Warranty

A Warranty Registration Card is included in the documentation package. Fill in all the information requested and answer all the questions immediately after completing the installation and return the card to Donaldson via the postage-paid card.

<b>NOTE</b>	Complete Warranty Registration Card
Failure to complete the warranty information requested by Donaldson within 30 days of installation of the emission control system may void this warranty.	

## Operation, Maintenance and Service Guide for DOC Mufflers

### Operation

Donaldson DOC Mufflers are designed and verified for use on most medium- and heavy-duty truck and bus applications. To ensure proper functioning of these products, Donaldson preventive maintenance and service procedures must be incorporated into your regular vehicle maintenance routines.


### Maintenance and Service

Preventive maintenance recommendations during normally scheduled vehicle maintenance

- (1) Inspect the DOC Muffler exhaust piping and mounting brackets.
- (2) Look for leaks, structural failures (cracks) and loose or missing fasteners.
- (3) Repair or replace defective parts, as appropriate.

<b>NOTE</b>	Do Not Use Fuels Blended with Lube Oil
Engine oil must not be blended with the engine's fuel since the oil may cause reduced emissions performance and deposits in the catalyst that may cause higher backpressure, plugging and reduced engine performance and void the warranty.	

<b>NOTE</b>	For Electronically Controlled Engines
Electronically controlled engines are certified with a specific fuel and electronic program based on engine configuration and model year. Use only the fuel and electronic program specified for your engine. Using the incorrect fuel and/or electronic program may cause excessive soot generation and catalyst plugging and may void the warranty.	

	<b>CAUTION!</b>
Certain components found in engine lube oil can poison catalysts. To protect against catalyst failure and/or plugging, ensure that the engine is not consuming oil at a rate higher than specified by the engine manufacturer. Use low ash oils, when possible. Do not use fuel blended with lube oil. Check with your local Donaldson dealer to review additives before use.	

Please contact Donaldson, at the phone number provided on the back cover, with installation questions or problems.

### Conditions That May Plug A DOC Muffler

- Engine operation at low load or idling for extended periods of time
- Improper engine maintenance
- Improper engine calibration for the specific fuel type being used

If plugging is suspected because of a noticeable loss of performance or fuel economy, you may want to measure the exhaust system backpressure.

### How to Check for a Plugged Catalyst

- (1) Weld a ¼"-18 NPT pipe coupling in the exhaust pipe near the DOC muffler inlet and drill 1/8"(3mm) diameter in center of coupling and install a manometer or backpressure gauge with a range of 0-80" H<sub>2</sub>O or 0-6"Hg.
- (2) Operate the engine until thoroughly warm, run at high idle, no load for 2-3 minutes.
- (3) Record backpressure with the engine at high idle running at the no load condition.

If backpressure is less than 40" H<sub>2</sub>O or 3" Hg, it is unlikely the DOC Muffler is involved. Continue to operate the DOC Muffler without further maintenance.

If backpressure is greater than 40" H<sub>2</sub>O or 3" Hg, follow the DOC Muffler Clean-Out Instructions.

### How to Prevent the DOC Muffler from Plugging

To prevent the DOC Muffler from plugging, the engine must be properly maintained and calibrated and idling must be minimized. Performance concerns about operating conditions must be resolved before operating again with a cleaned DOC Muffler.

### DOC Muffler Clean-Out Instructions

Operate the vehicle with a high engine load (e.g., maximum highway speed, uphill or on a chassis dynamometer) for 10-15 minutes and recheck the high idle, no load backpressure by repeating steps 2 and 3 of How to Check Backpressure Instructions.

If backpressure is less than 40" H<sub>2</sub>O or 3" Hg, continue to operate the converter without further maintenance.


If backpressure is greater than 40" H<sub>2</sub>O or 3" Hg, contact Donaldson.

If the DOC Muffler has a mid-section within two v-band clamps, the DOC may be cleaned and re-used.


### DOC Cleaning Equipment

The following items are required to perform the cleaning process.

- (1) A source of compressed dry air with a standard shop air gun (80-100 psi/550-670 kPa)
- (2) Dust mask, gloves and safety glasses
- (3) An industrial vacuum cleaner or a dust/ash collecting unit

	<b>CAUTION!</b> Safety Precaution!
A dust mask, gloves and safety glasses should be worn while performing the cleaning process.	

### DOC Cleaning Instructions

	<b>CAUTION!</b> Do not use STEAM or DETERGENTS to clean the DOC.
Donaldson does not recommend cleaning the DOC with steam and/or other detergents. Use of these products may damage and/or deactivate the DOC.	

- (1) Loosen the two body clamps and remove the DOC from the DOC Muffler body.
- (2) Using compressed air on the outlet side and a vacuum on the inlet side, blow air through the DOC while capturing ash and particulate in the vacuum cleaner.
- (3) Avoiding direct contact of the air nozzle with the DOC surface, slowly move the air nozzle across the face of the DOC directing the air into each individual cell. Continue this process until all cells of the DOC are visibly clear. Cleaning time depends on the size of the DOC surface. DOCs larger than 10.5 (267mm) may require longer cleaning time.
- (4) Reinstall the DOC in the reverse direction in from which it was removed.
- (5) Place the DOC in the center of the DOC Muffler and re-tighten the body clamps.

### Reset the Backpressure Monitor (if applicable)

After cleaning, reset the backpressure monitor, if either light is on.

- (1) Turn on vehicle ignition
- (2) Press and hold down the reset button on the Electronic Control Unit (ECU) for several seconds.

## **Record DOC Service**

Regulatory agencies require that you maintain the following service and cleaning records:

- Date of installation
- Vehicle mileage at the time of installation
- Part number
- Serial number
- Date of cleaning
- Mileage at each cleaning

## **Ash Disposal**

Disposal of ash and particulate should be in accordance with all local laws and regulations.

## **DOC Muffler Disposal Information**

DOC Mufflers use a precious metal catalyst to reduce carbon monoxide, hydrocarbons and diesel particulate matter emissions. Typical metals include platinum, palladium and rhodium. These materials can be recycled from damaged or deactivated DOC Mufflers. Please dispose of DOC Mufflers in accordance with local regulations and laws; recycle when possible.

## **Actions and Improper Maintenance That May Void Your Warranty**

The following conditions are considered to be abuse, neglect or improper maintenance that may void your warranty.

- Misapplication or improper installation of the DOC Muffler (failure to adhere to the Donaldson owners manual)
- Failures or damage caused by mounting system failures
- Modifications, alterations or attempted repair of the DOC Muffler
- The use of fuels not consistent with EPA/CARB regulations, fuel other than that for which the engine is calibrated or fuels blended with used lube oil
- Damage to the catalyst or plugging caused by water entry
- Operating conditions that result in plugged and/or poisoned catalysts
- Physical damage caused by misuse, abuse or road hazards including (but not limited to) dents, cuts or fractures to the exterior or interior of the DOC Muffler
- Failure to return the warranty registration card within 30 days of installation



# Donaldson.

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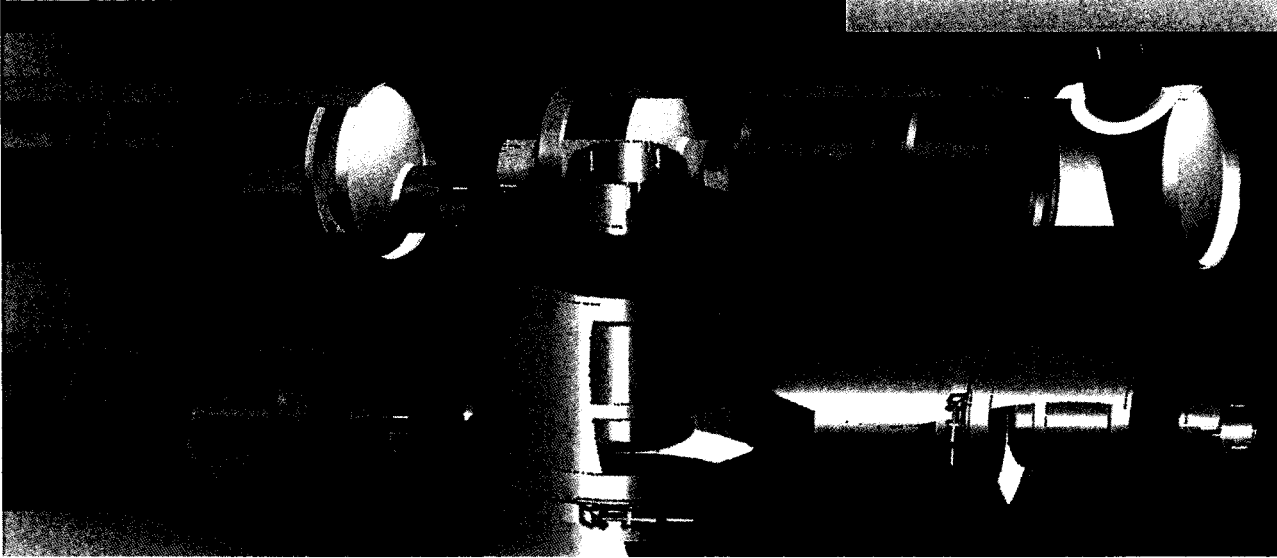
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change or discontinue any model or specification at  
any time and without notice.



## **Diesel Multi-stage Filter (DMF) Muffler Installation, Operation & Maintenance Manual**



**Thank you for purchasing the  
Donaldson DMF Muffler to reduce  
diesel particulate emissions.**

**This owner's manual includes  
pre-installation requirements,  
installation instructions, warranty  
activation procedures and  
maintenance procedures.**

**Donaldson**

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Through out this manual statements indicating precautions necessary to avoid equipment failure are referenced as a NOTE. Statements indicating potential hazards that could result in personal injury or property damage are referenced in CAUTION! boxes.

#### Examples:

#### **NOTE**

Comments highlighting concerns that may result in vehicle or equipment damage OR used to call-out important application steps or procedures.



**CAUTION!**  
Comments highlighting personal safety, injury or equipment damaged are considered warning statements and are called out as CAUTION with the triangle symbol.

## Introduction

Donaldson's DMF Muffler is designed to reduce harmful emissions from in-use diesel engines. Besides reducing diesel particulate matter emissions more than 70% , the DMF muffler is also effective at reducing hydrocarbon emissions. California has classified several hydrocarbon emissions as toxic air contaminants.

DMF Mufflers are extremely reliable, easy to apply and provide substantial benefits in air quality.

For optimum performance of your DMF Muffler, follow Donaldson's simple installation recommendations.

<b>NOTE</b>	Follow installation requirements
Installations must meet Donaldson requirements to obtain full warranty coverage.	

## Pre-Installation Requirements

Your Donaldson DMF Muffler includes the following parts:

Qty.	Description
1	DMF Muffler
1	Documentation package that includes this owner's manual, a warranty registration card, warranty statement and engine tag (for CARB requirement).

Donaldson's pre-installation requirements are provided below. In order to maximize DMF Muffler performance and life, installation must meet these requirements.

<b>NOTE</b>	Engine Must Meet OEM Specifications
The engine must be inspected by a qualified mechanic to verify the engine is operating within the engine OEM's specifications. If the engine does not meet specifications, necessary repairs must be made prior to DMF Muffler installation. The mechanic must document compliance on the warranty registration form. Failure to comply may void the warranty. The warranty and warranty registration card are separate documents in the documentation package.	

## Selecting the Right DMF Muffler

Be sure you have selected the proper DMF Muffler model. Application of the wrong model will affect exhaust system backpressure. Failure to apply the proper model may cause engine damage and void the warranty. If engine horsepower exceeds the rating of a single DMF Muffler, dual DMF Mufflers will be required.

## Inspect Mounting Hardware

DMF Mufflers weigh approximately twice as much as a traditional OEM truck mufflers (60 lbs. vs. 30 lbs. [20.4 kg vs 13.6 kg]). Inspect any mounting system hardware intended for reuse to ensure it is in good condition and can adequately support the added weight. Look for signs of rust, corrosion or fatigue. Do not reuse suspect components. Heavy-duty components should be used.

<b>NOTE</b>	Inspect DMF Muffler Mounting Hardware
A DMF Muffler is double the weight compared to a traditional OEM truck muffler. The mounting system should be inspected to ensure it is in good condition and can adequately support the added weight. Inspect all hardware intended for reuse for rust, corrosion or fatigue. Replace all questionable components with heavy-duty components.	

## Minimize Exhaust Tubing Lengths

The filter temperature has an affect on emissions reduction performance. To optimize emissions reduction, the DMF Muffler inlet must be less than 15 ft. (4.6m) downstream from the turbocharger outlet flange when measured along the piping center line. Placement beyond 15 ft. (4.6m) may result in a plugged catalyst and void the warranty.

The filter should be mounted as close to the engine as possible, but must be isolated from engine vibration. Do not hard-mount the DMF Muffler directly to the engine.

<b>NOTE</b>	Mount the DMF Muffler Less than 15 ft. (4.6m) from the turbocharger
Mount the DMF Muffler less than 15 Ft. (4.6m) downstream from the turbocharger outlet. Mounting the DMF Muffler beyond this distance may cause plugging and void the warranty.	

## Minimize Exhaust Leaks and Plugging

To maximize emission aftertreatment effectiveness, exhaust tubing should be structurally sound and leak-free. Inspect the exhaust tubing for leaks due to damage or corrosion, and replace defective components. Also look for flaking due to corrosion and/or soot build-up. Loose contaminants can be blown onto the filter face and cause plugging, increased backpressure and degraded engine performance.

<b>NOTE</b>	<b>Check Existing Exhaust Tubing for Rust, Corrosion and Soot</b>
<p>If you see any evidence of rust or corrosion on existing tubing between the turbocharger and DMF muffler inlet, replace with new aluminized steel tubing. If reusing existing exhaust tubing, banging and tapping on the tubing may dislodge soot. Be sure to clean out any pipes prior to installing new components. Operate engine at high idle to blow out exhaust pipes prior to the installation of the DMF Muffler. Protect yourself and others from loud straight pipe noise.</p>	

## DMF Muffler Installation

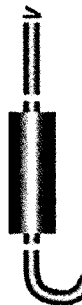
The following section includes separate procedures for vertical and horizontal installations. Please use the procedure that matches your current muffler orientation.

Make sure to review all pre-installation requirements before proceeding with the installation.

<b>NOTE</b>	<b>Existing Engine Problems Must be Resolved Prior to DMF Muffler Installation</b>
<p>DMF Mufflers may plug if the engine is not properly maintained. This is especially true when operated under low-load or low ambient temperature conditions, idled for extended periods of time or if the engine is not properly calibrated for the specific fuel-type being used. To prevent the occurrence of plugging, engine problems must be resolved prior to installing a DMF Muffler.</p>	

### Vertical Installation Remove the Existing Muffler

- Loosen stack clamp at muffler outlet (top). Remove stack and clamp.
- Loosen tubing clamp at muffler inlet (bottom).
- Loosen clamps on flex tubing. Remove clamps, flex and elbow.
- Remove muffler and heat shield mounting bands.



## Install the DMF Muffler

- Inspect the mounting brackets, bands, supports and/or stanchion for any damage, cracks or corrosion. Mounting components must be strong enough to adequately support the additional **30 lbs (13.6 kg)** weight. Replace any existing mounting parts that appear rusted, damaged or of questionable strength with heavy-duty parts.
- Place muffler/heat shield mounting bands on DMF Muffler body and finger-tighten. Locate DMF Muffler on mast in position of original muffler. Secure on mast with muffler mounting bands.

	<b>CAUTION! Do Not Overtighten Bands or Clamps on Muffler Body</b>
<p>The filtering substrate inside could be damaged if you deform the muffler body by overtightening clamps.</p>	

- Position flex tubing and clamps onto exhaust tube. Do not tighten clamps until all tubing is assembled.
- Position inlet elbow and muffler inlet clamp. Locate flex tube so that there are equal lengths of rigid tubing (within the flex) on both ends. Tighten clamps to secure flex tubing and inlet elbow.

	<b>CAUTION! Avoid Excessive Force on Pipe or Pipe Supports.</b>
<p>Excessive force on the inlet and outlet piping in conjunction with vehicle vibration can result in stress cracking where the pipe or pipe supports contact the DMF Muffler inlet. Failures caused by excessive force are a result of improper installation and may not be covered under the warranty.</p>	

- Position clamp over DMF Muffler outlet tube. Insert stack into the muffler outlet and tighten securely. Install a rain cap on all applications to prevent water damage.

	<b>CAUTION! Water from Rain and Truck Washing Can Poison the Filter.</b>
<p>Water can also damage the filter retention material in the DMF Muffler. Vertical tail pipes must be fitted with rain cap or curved outlets.</p>	

- Verify that all bolts and fasteners have been sufficiently tightened.
- Operate vehicle and check for exhaust leaks. Repair any leaks.

8. Turn off the engine.
9. To meet CARB requirements, permanently attach the product identification tag (supplied in documentation package) in a clearly visible location on the engine. CARB regulations require a product identification tag be permanently installed on the engine in a clear, visible location. Application of the engine tag is not necessary for U.S. EPA regulations.

<b>NOTE</b>	CARB Requirement
California ARB regulations require a product identification tag be permanently installed on the engine in a clear, visible location.	

10. Fill out and return the Warranty Registration Card (included in the documentation package in the DMF Muffler box). Failure to return the warranty registration card within 30 days of installation may void the warranty.

### Horizontal Installation Remove the Existing Muffler



1. Loosen clamp at muffler outlet. Remove clamp and tailpipe.
2. Remove clamp at muffler inlet.
3. Loosen muffler mounting bands and remove muffler.

### Install the DMF Muffler


1. Inspect the mounting brackets, bands, hangers, and supports for any damage, cracks or corrosion. Mounting components must be strong enough to adequately support the additional 30 lbs. (13.6 kg) weight. Replace any existing mounting parts that appear rusted, damaged or of questionable strength with heavy-duty parts.

<b>NOTE</b>	Mounting System Space Allowance
Allow 1" (25mm) space for engine movement and thermal expansion around the DMF Muffler.	


2. If the application uses a vertical tailpipe, drill a 1/4" (6mm) drain hole 12-18" (305-452mm) from the outlet end of the DMF Muffler.

<b>NOTE</b>	Drain Hole Required on Horizontal Mount with a Vertical Tailpipe
Horizontally-mounted DMF Mufflers with a vertical tailpipe must have a 0.25" (6mm) diameter drain hole drilled through the lowest point of the body, 12-18" (305-452mm) from the outlet end of the DMF Muffler. Rain and truck wash water can poison the filter, reducing emission performance. Water can also damage the filter retention material in the DMF Muffler. Vertical tail pipes should be fitted with rain caps or curved outlets.	

3. Position the DMF Muffler in the mounting bands on muffler and mount in position. Position DMF Muffler so drain hole is at the bottom. Be sure the mounting bands do not cover the drain hole.
4. Tighten clamp on muffler inlet.

	<b>CAUTION! Do Not Overtighten Bands or Clamps on Muffler Body</b>
The filter inside could be damaged if you deform the muffler body by overtightening clamps.	

5. Install tailpipe and secure clamp on muffler outlet/tailpipe joint.

	<b>CAUTION! Avoid Rigid Mounting of the DMF Muffler</b>
The original equipment muffler should have flexible hangers installed to allow for thermal expansion. If your system does not have flexible hangers they should be installed.	

6. Verify that all bolts and fasteners have been sufficiently tightened.
7. Operate vehicle and check for exhaust leaks. Repair any leaks.
8. Turn off the engine.
9. To meet CARB requirements, permanently attach the product identification tag (supplied in documentation package) in a clearly visible location on the engine. CARB regulations require a product identification tag be permanently installed on the engine in a clear, visible location. Application of the engine tag is not necessary for U.S. EPA regulations.

<b>NOTE</b>	CARB Requirement
California ARB regulations require a product identification tag be permanently installed on the engine in a clear, visible location.	

- Fill out and return the Warranty Registration Card (included in the documentation package in the DMF Muffler box). Failure to return the warranty registration card within 30 days of installation may void the warranty.

## Activating the Warranty

A Warranty Registration Card is included in the documentation package. Fill in all the information requested and answer all the questions immediately after completing the installation and return the card to Donaldson via the postage-paid card.

<b>NOTE</b>	Complete Warranty Registration Card
Failure to complete the warranty information requested by Donaldson within 30 days of installation of the emission control system may void this warranty.	

Please contact Donaldson, at the phone number provided on the back cover, with installation questions or problems.

## Operation, Maintenance and Service

### Operation

Donaldson DMF Mufflers are designed and verified for use on most medium- and heavy-duty truck and bus applications. To ensure proper functioning of these products, Donaldson preventive maintenance and service procedures must be incorporated into your regular vehicle maintenance routines.

### Maintenance and Service


Preventive maintenance recommendations during normally scheduled vehicle maintenance

- Inspect the DMF Muffler exhaust piping and mounting brackets.
- Look for leaks, structural failures (cracks) and loose or missing fasteners.

- Repair or replace defective parts, as appropriate.

<b>NOTE</b>	Do Not Use Fuels Blended with Lube Oil
Engine oil must not be blended with the engine's fuel since the oil may cause reduced emissions performance and deposits in the filter that may cause higher backpressure, plugging and reduced engine performance and void the warranty.	

<b>NOTE</b>	For Electronically Controlled Engines
Electronically controlled engines are certified with a specific fuel and electronic program based on engine configuration and model year. Use only the fuel and electronic program specified for your engine. Using the incorrect fuel and/or electronic program may cause excessive soot generation and filter plugging and may void the warranty.	

	<b>CAUTION!</b> Use Low Ash Engine Oil
Certain components found in engine lube oil can poison catalysts. To protect against filter failure and/or plugging, ensure that the engine is not consuming oil at a rate higher than specified by the engine manufacturer. Use low ash oils, when possible. Do not use fuel blended with lube oil. Check with your local Donaldson dealer to review additives before use.	

## Filter Service and Cleaning

The filtering device is located in the center body of the DMF muffler. If the filter becomes plugged, it will need to be cleaned. Filter plugging is a rare occurrence.

<b>NOTE</b>	No Routine Maintenance
The DMF Muffler does not typically require or need routine service during its life. Service will only be needed if it is misapplied or poor engine conditions increase soot output to an abnormally high level. Cleaning instructions are listed for reference in the event the filter becomes plugged.	

## How to Prevent the DMF Muffler from Plugging

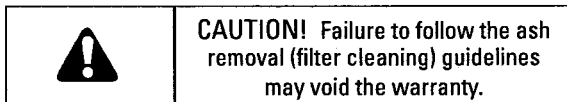
To prevent the DMF Muffler from plugging, the engine must be properly maintained and calibrated and idling must be minimized. Performance concerns about operating conditions must be resolved before operating again with a cleaned DMF Muffler.

## How to Check for a Plugged Filter

1. Weld a ¼" -18 NPT pipe coupling in the exhaust pipe near the DMF muffler inlet and drill 1/8" (3mm) diameter in center of coupling and install a manometer or backpressure gauge with a range of 0-80" H<sub>2</sub>O or 0-6" Hg.
2. Operate the engine until thoroughly warm, run at high idle, no load for 2-3 minutes.
3. Record backpressure with the engine at high idle running at the no load condition.

If backpressure is less than 40" H<sub>2</sub>O or 3" Hg, it is unlikely the DMF Muffler is involved. Continue to operate the DMF Muffler without further maintenance.

If backpressure is greater than 40" H<sub>2</sub>O or 3" Hg, follow the DMF Muffler Clean-Out Instructions.

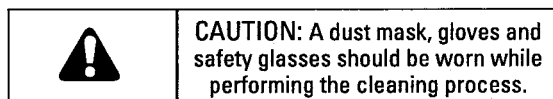


Proper original equipment manufacturer engine maintenance procedures must be followed to ensure proper DMF Muffler filter operation. Oil consumption that exceeds the original engine manufacturer's specifications will increase the required cleaning frequency.

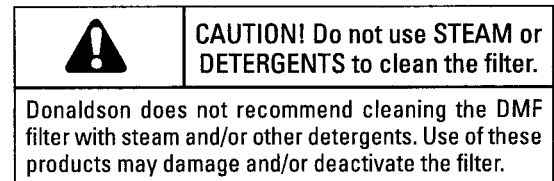
## Filter Cleaning Equipment

The following three items are required to perform the filter cleaning process:

- A source of compressed dry air (80-100 psi / 550-670 kPa) with a standard shop air-gun
- Dust mask, gloves and safety glasses
- A soft, bristled brush
- An industrial vacuum cleaner or a dust/ash collecting unit.



## Filter Cleaning Instructions



1. Loosen the two body clamps and remove the center body from the DMF Muffler body.
2. Using compressed air on the outlet side and a vacuum on the inlet side, blow air through the filter while capturing the ash in the vacuum cleaner.
3. Avoiding direct contact of the air nozzle with the filter surface, slowly move the air nozzle across the face of the filter, directing air into each individual cell. Using a soft bristled brush, brush the surface of the filter until it's free of soot.
4. Reinstall the cleaned filter (center body) and tighten the two body clamps.
5. If vehicle is equipped with filter service monitor, you may need to reset the device.

## Record Filter Service

Regulatory agencies require that you maintain the following filter service and cleaning records:

- Date of installation
- Vehicle mileage at the time of installation
- Part number
- Serial number
- Date of filter cleaning
- Mileage at each filter cleaning

## DMF Muffler Disposal Information

DMF Mufflers use a precious metal catalyst to reduce carbon monoxide, hydrocarbons and diesel particulate matter emissions. Typical metals may include platinum, palladium and rhodium. These materials can be recycled from damaged or deactivated DMF Mufflers. Please dispose of DMF Mufflers in accordance with local regulations and laws; recycle when possible.

## **Actions and Improper Maintenance That May Void Your Warranty**

Prior to installing any DMF Muffler unit, a vehicle profile sheet must be completed by the equipment owner and approved by Donaldson. Failure to obtain this approval may void this warranty.

The following conditions are considered to be abuse, neglect or improper maintenance that may void your warranty:

- Failure to follow Original Equipment Manufacturer (OEM) maintenance and operating procedures. Proper OEM maintenance and operating procedures are understood to be those procedures recommended by the OEM to ensure engine longevity and operation.
- Excessive particulate emissions due to poor engine operation and maintenance.
- Misapplication of the DMF unit to an engine model or to a duty cycle other than that for which the DMF unit is designed and approved
- Improper installation of the DMF unit (strict adherence to the Donaldson owners manual is required).
- Alterations or attempted repairs.
- Progressive engine failure that allows lube oil, fuel or coolant to be present in the engine exhaust, in excess of OEM specifications.
- Use of fuel:
  - (a) other than that for which the engine is calibrated or other than recommended by Donaldson.
  - (b) containing other than ultra low sulfur diesel or not approved in writing by Donaldson, or fuel other than that which is specifically required to achieve the emissions required by the DMF unit.
  - (c) blended fuel with lube oil, kerosene, fuel additives or other materials not approved in writing by Donaldson.
- Excessive lube oil consumption.
- Physical damage caused by misuse, abuse or road hazards including (but not limited to) dents, cuts or fractures of the DMF unit.
- Damage caused by improper cleaning procedures (failure to adhere to Donaldson recommended cleaning guidelines).
- Failures or damage caused by mounting system failures.
- Damage to the catalyst or plugging caused by water entry.
- Failure to return the warranty registration card within 30 days of installation.



**Donaldson.**

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