Clarus
Oil-CAT
(OIL-CHANGE ALTERNATIVE TECHNOLOGY)

Operators Manual

Manufactured by:

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FOREWORD

1. This manual describes the procedures required to operate the Clarus Oil-CAT. Every effort has been made by Clarus Technologies, LLC to assure the accuracy and reliability of the information contained in this document. Clarus Technologies, LLC, however, makes no representation, warranty, or guarantee in connection with this manual and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any federal, state, provincial or municipal regulation with which this publication may conflict.

2. The electrical components of the Clarus Oil-CAT have been designed and assembled with UL approved equipment where required.

WARNING! The operational techniques used with this equipment are more important than the design of the equipment for the safety of the worker. Therefore, each technician involved in the operation of the Clarus Oil-CAT must have the proper hazardous materials training.

3. Clarus is not undertaking to meet the duties of employers to warn and properly train and equip their employees, and others exposed, concerning health and safety risks and precautions, nor undertaking their obligations under local, state, provincial or federal laws.

4. Information concerning safety and health risks and proper precautions with respect to particular materials and conditions should be obtained from the employer, the manufacturer or supplier of that material, or the Material Safety Data Sheet ("MSDS").

CLARUS Oil-CAT
OPERATOR'S MANUAL

I. INTRODUCTION

Congratulations on your purchase of the Clarus Oil-CAT! This fuel oil blender is a product of Clarus Technologies, LLC engineering and manufacturing division. It is made of the finest materials under a rigid quality control system. With proper care it will give you long and satisfactory service.

To obtain the best use of your Oil-CAT, please read this manual carefully. It will help you become familiar with the operation of the equipment. The instructions and specifications contained in this manual were in effect as of February 2001. Due to the policy of Clarus Technologies, LLC to continually improve its products, however, modifications in these specifications may be made at any time. To get the latest information please check our website at http://www.clarustechnologies.com and go to the manual section.

This Operators Manual was compiled for your benefit. By reading and following the safety, setup, operation, and trouble-shooting instructions described in the manual, you should receive many years of trouble-free operation. Familiarize yourself with the names of the Oil-CAT components, which appear as capitalized terms throughout this manual. ***Read this entire manual before attempting to start and operate the Clarus Oil-CAT.***

II. SPECIFICATIONS

SPECIFICATIONS – OIL-CAT

- ✧ Height/width/length (inches) – 40/18/29
- ✧ Weight - 100 lbs
- ✧ Flow rates:
  - Fuel Pump: 2 gallons per minute
  - Motor Oil Pump: 1 – 2 quarts per minute
- ✧ Pumps – rotary diaphragm
- ✧ Blending Chamber – turbulent flow blending chamber (12 compartment)
- ✧ Bypass Valve – Set @ 50 psi
- ✧ Filters – 4½”x18” pleated cartridge type
- ✧ Filter Rating – 0.5 microns
- ✧ Filter Gauge – 0-60 psi
- ✧ Timer – 0-60 minutes with continuous “on” switch
- ✧ Hose Lengths:
  - Oil Drain Tote Hose – 12’
  - Double Suction/Return Hose – 12’
- ✧ Power Requirement:
  - 120V AC 5A
  - 24V DC (optional for use with NATO plug)
- ✧ Material - steel
- ✧ Finish – baked on polyester powder coat

SPECIFICATIONS – DRAIN TOTE

- ✧ Capacity – Approximately 11 gallons
- ✧ Height/width/length (inches) – 10/18/22
- ✧ Weight 25 lbs
- ✧ ¼ turn valve to prevent spills
- ✧ Quick disconnect for Oil-CAT hose
- ✧ Swivel castors – 2” (4) each
- ✧ Lid with latch
- ✧ Material - steel
- ✧ Finish – baked on polyester powder coat

III. WARRANTY INFORMATION

Clarus Technologies, LLC, provides a “Limited 5 Year Warranty” for the life of the unit, and will repair or replace without charge, parts which our examination proves to be defective in material or workmanship. This warranty is valid only if the unit has not been tampered with by unauthorized persons, misused, abused, or improperly installed and has been used in accordance with the instructions and/or ratings supplied. The foregoing is in lieu of any other warranty or guarantee expressed or implied, and we are not responsible for any expense (including installation and removal), inconvenience, or consequential damage, including injury to any person, caused by items or our manufacture or sale. Some states do not allow certain exclusion or limitations found in this warranty so that they may not apply to you. In any event, Clarus Technologies, LLC total liability, under all circumstances, shall not exceed the full replacement cost of this unit.

This Limited 5 Year Parts Warranty is limited to the following components:

- Main chassis
- Oil drain tote chassis
- Filter canister (excluding replacement cartridges/O-Rings)
- Plumbing assemblies (excluding inlet strainers)
- Mixing chamber

Clarus Technologies, LLC, will for the period of 1 year from the date of purchase, repair or replace without charge, the items listed below which our examination proves to be defective in material or workmanship. This warranty is valid only if the unit has not been tampered with by unauthorized persons, misused, abused, or improperly installed and has been used in accordance with the instructions and/or ratings supplied.

This 1 year Mechanical/Electric Component Warranty covers the following components:

- Electric control systems
- Oil pump
- Fuel pump
- Inlet strainer assemblies

NOTE: Consumable items such as O-Rings, filters, working hoses and strainer baskets, are excluded from any such warranty.

IV. SAFETY

To safely operate the Clarus Oil-CAT, it is essential to know the proper safety procedures and equipment.

A. Safety Warnings.

The definitions for the safety warnings used throughout this manual are as follows:

Warning: Means that if the safety information is not followed, personnel, equipment or the environment **may** be damaged or hurt.

Material Safety Data Sheets (MSDS)

The MSDS provides technical information regarding use, hazards, precautions and emergency procedures related to specific fluids. The MSDS also contain toll-free phone numbers that may be called to provide further safety and emergency treatment information.

Operators of the Clarus Oil-CAT must have on hand an MSDS for the type of oil and fuel that they will be mixing. The MSDS are available from the fuel and oil supplier. In some localities it is required by law that appropriate MSDS are on hand whenever hazardous or flammable material is being processed.

B. Safety Equipment.

1. Safety Glasses. Operators should wear safety glasses during the operation of the Oil-CAT. The major hazard is the possibility of splashing petroleum-based fluids into the eye. If petroleum-based fluid is splashed into the eye, severe damage may occur. First Aid treatment should be initiated immediately. Refer to MSDS.

2. Protective Gloves. Appropriate protective gloves should be worn whenever there is a possibility that the fluids being used may come into contact with the hands. Different types of gloves may be required for differently types of fluids. The local safety supply source can recommend the appropriate protective gloves.

3. Flammable. For the safety of owners and operators NO SMOKING around or near this equipment.

V. QUICK START GUIDE

Please read entire Quick Start Guide before beginning, this will avoid possible start up problems.

Step 1. Determine that waste oil contains no significant amounts of antifreeze.

Step 2. Confirm that vehicle fuel tank contains #2 diesel fuel or JP-8 only.

Step 3. Confirm that vehicle fuel tank has sufficient room to hold the entire volume of oil from crankcase, and is at least ¾ full.

- For Hummvies remove screen in fill spout.
- For 2½ ton and larger vehicles fuel level should be 1" above the bottom of the fuel fill screen.

Step 4. Insert double red/green "fuel hose" into the fuel tank of the vehicle.

Step 5. Connect red "oil hose" from Oil-CAT to red Oil Drain Tote.

Step 6. Place Oil Drain Tote under vehicle drain plug, pull plug and drain crankcase oil into red Oil Drain Tote.

Step 7. When all oil is drained from crankcase, replace drain plug, change oil filter and refill with new oil as per established maintenance procedures before starting the engine.

Step 8. Rotate ¼ turn valves on red Oil Drain Tote and on red hose to the open position.

Step. 9. Start Oil-CAT by turning timer past the 10-minute mark to desired processing time. Actual processing time is approximately equal to 1 minute for every quart of waste oil. If additional time is needed, simply turn timer past 10-minute mark and then set to actual time desired.

Note: It is possible to additionally filter and clean the fuel tank and it's contents by setting additional time on the Oil-CAT timer so it will continue to run after all the waste motor oil has been processed.

Step. 10. The Oil-CAT will automatically turn off when the timer hits zero. The unit can also be manually turned off by setting timer to zero. When finished coil red/green and red hose onto the hose rack taking care not to drip any fluids.

VI. PARTS DESCRIPTION & OPERATION

A. Oil Drain Tote.

The red oil drain tote easily rolls under vehicles to collect the used oil from the vehicle oil pan. The oil drain tote has a screen to prevent the oil drain plug and other debris from

falling into the collected oil. The oil drain tote has a convenient lid to prevent spills when it is being moved while full, along with a valve on the drain connection.

B. Oil-CAT.

The Oil-CAT unit easily rolls up to the vehicle being serviced on two semi-pneumatic wheels.

C. On Off Timer.

The timer turns the system on and off. The timer must be turned clock-wise past 10 minutes and then set to the desired time. The operator should set the timer for approximately one minute for every quart of oil to be processed.

D. Filter Change-Out Gauge.

The filter change-out gauge is located next to the on/off timer and tells the operator the condition of the filter cartridge. When the gauge reads 40 psi, it is time to change the filter.

E. Inlet Strainers.

The inlet strainers on the outside of the main chassis prevent any damaging debris from entering the pumps. The basket strainers should always be installed when operating the Oil-CAT. To clean clogged strainer baskets, simply unscrew the strainer bowl and remove the strainer basket. Clean the strainer basket with a rag, or in a parts washing station. Never hit the basket on a solid object to remove the debris, this will deform the basket rendering it inoperable.

F. Motor Oil Pump.

The motor oil pump pulls the oil from the Oil Drain Tote, and delivers it to the fuel pump for mixing.

G. Fuel Pump.

The fuel pump pulls fuel from the fuel tank and pushes it along with the engine oil through the Turbulent Flow Blending Chamber and Particulate Filter, delivering the clean and mixed product to the fuel tank.

F. Turbulent Flow Blending Chamber.

The Turbulent Flow Blending Chamber mixes the engine oil from the crankcase and fuel from the fuel tank.

G. High Efficiency Particulate Filter.

The high efficiency particulate filter cleans the fuel oil mixture so there is no particulate remaining that would plug the engine fuel filters.

H. Drain Tote Hose.

The red drain tote hose connects to the drain tote with a quick disconnect fitting. To prevent drips, the hose end is supplied with a quarter turn shutoff valve.

I. Fuel Suction and Return Hose.

The double red/green hose assembly removes fuel from the fuel tank and returns the fuel/oil mixture to the fuel tank.

VII. CARE AND MAINTENANCE

⚠ **WARNING! ALWAYS WEAR GLOVES AND EYE PROTECTION WHEN HANDLING OIL OR FILTERS.**

A. Changing Filters.

The Oil-CAT comes equipped with one 5 X 18" filter canister. Inside this canister is a 4.5" X 18" filter cartridge. This filter needs to be changed when a 40-PSI reading is indicated on the pressure gauge mounted on the top of the main chassis. When the gauge indicates a filter change is needed please follow these steps:

1. Turn all power to the system off.

2. Unplug the unit from wall receptacle.

3. Carefully spin off filter canister lid by hand. If the lid is too tight, use a large rag or similar device to gain more leverage. Be careful not to use a hammer like device to pound on plastic wings as they will easily break off and damage the lid.

4. With the lid off, pull the used filter out of the canister and place in an appropriate container taking care not to drip any waste oil on the ground.

5. Place a new (Clarus Stock# FO518CAT) filter in the canister.

6. Replace lid, screw it down by hand until it seals firm to the top of the filter, and do not over tighten.

B. Canister Lid O-Ring Maintenance

Every time the filters are changed, smear a small amount of petroleum jelly or grease around the o-ring to keep it lubricated.

⚠ **WARNING! When changing filters, make sure to have something underneath the used filter as you move it, such as a bucket or oilsorb, to capture any incidental drips.**

IX. TROUBLE-SHOOTING

Problem	Solution
No suction on oil drain totes hose.	1. Check motor oil inlet strainer and clean if necessary 2. Check if sludge has plugged drain hole in sump of oil drain tote.
No suction on fuel side of double hose.	1. Check fuel inlet strainer – clean if needed. 2. Check hose end for plugging. 3. Confirm hose is in the fuel.
Pumps won't run.	1. Check power source. 2. Check fuse, replace if needed.
Slow flow-rate.	1. Check filter gauge when running – change filter if needed. 2. Check fuel inlet strainer and motor oil inlet strainer – clean if needed.