

**MOTORVAC<sup>®</sup>**  
**OIL CLEAN**  
**SYSTEM**

**ENGINE LUBE  
FLUSH SYSTEM**

**MOF-1000**

FOR

Gasoline (Petrol) and  
Diesel Engines

**OPERATORS MANUAL**

MOTORVAC TECHNOLOGIES INC.

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# Introduction

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Congratulations on your selection of the **MOTORVAC OILCLEAN 1000 SYSTEM™**. By choosing this product, you are acquiring the most technologically advanced method available for cleaning varnish, sludge, soft carbon and other contaminants from gasoline and diesel engine oiling systems.

The **OILCLEAN 1000** is a self-contained cleaning system, designed to connect to any gasoline or diesel engine (up to 9.5L / 10 qts of crankcase capacity). Once the unit is connected, it temporarily replaces the regular oil filter, allowing a specially formulated **MotorVac™ Cleaning Detergent** mixture to circulate throughout the engines lubricating system.

The **OILCLEAN 1000** will pump a special cleaning fluid into the vehicles oil pan.

With the engine idling, the oil/detergent mixture is circulated through the engine's lubricating system. As the mixture passes through the engine's lubricating system, it loosens and dissolves accumulated deposits, which then pass harmlessly out of the engine and are removed by the unit's **5-micron** filter. Removing contaminants from the engine's lubricating system creates better oil flow, which improves horsepower, increases fuel economy, and reduces exhaust emissions.

Please refer to the chart below for the recommended service intervals:

Recommended Service Intervals	
Type of Vehicle	Mileage
Automobile - Gasoline	12,000 – 15,000 miles or 19,000 – 24,000 kilometers or once a year
Automobile - Diesel Light-Duty Trucks	12,000 – 15,000 miles or 19,000 – 24,000 kilometers or once a year

Please study this *User Guide* to become thoroughly familiar with the **OILCLEAN 1000** before using it.

## IMPORTANT

The **OILCLEAN 1000 SYSTEM** Machines are designed to work  
**EXCLUSIVELY**  
With **MotorVac™ Cleaning Detergents**.

Use of any other chemicals during this process may cause operational failure of the **OILCLEAN 1000** and voids the manufacturer's warranty.  
See warranty card for details.

# Overview

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This manual contains all the information you need to use the **MOTORVAC OILCLEAN 1000**. Please make sure all technicians have read this manual and have it within easy reach whenever the unit is being used.

The following is a quick reference to the information in this manual:

## **System Features and Functions**

This chapter describes the **OILCLEAN 1000** gauges, control switches, and connections.

## **Safety Information**

***Adhere to the safety guidelines in this chapter at all times!***

## **Before You Begin**

Follow the instructions for before using the unit for the first time.

## **Oil System Cleaning Procedures**

These chapters contain step-by-step setup and cleaning procedures for using the unit.

## **Troubleshooting and Additional Help**

Turn to this chapter in the unlikely event you have problems with your **OILCLEAN 1000**.

## **Appendices – Maintenance, Accessories, Parts, and MSDS reports.**

The appendices contain routine maintenance procedures the **OILCLEAN 1000**, such as changing the filters, and the Material Safety Data Sheets.

# System Features and Functions

The front of the **MotorVac OilClean 1000 System™** cabinet contains the control panel, control switches and status indicators. The filter and detergent reservoir are mounted on the side of the cabinet.



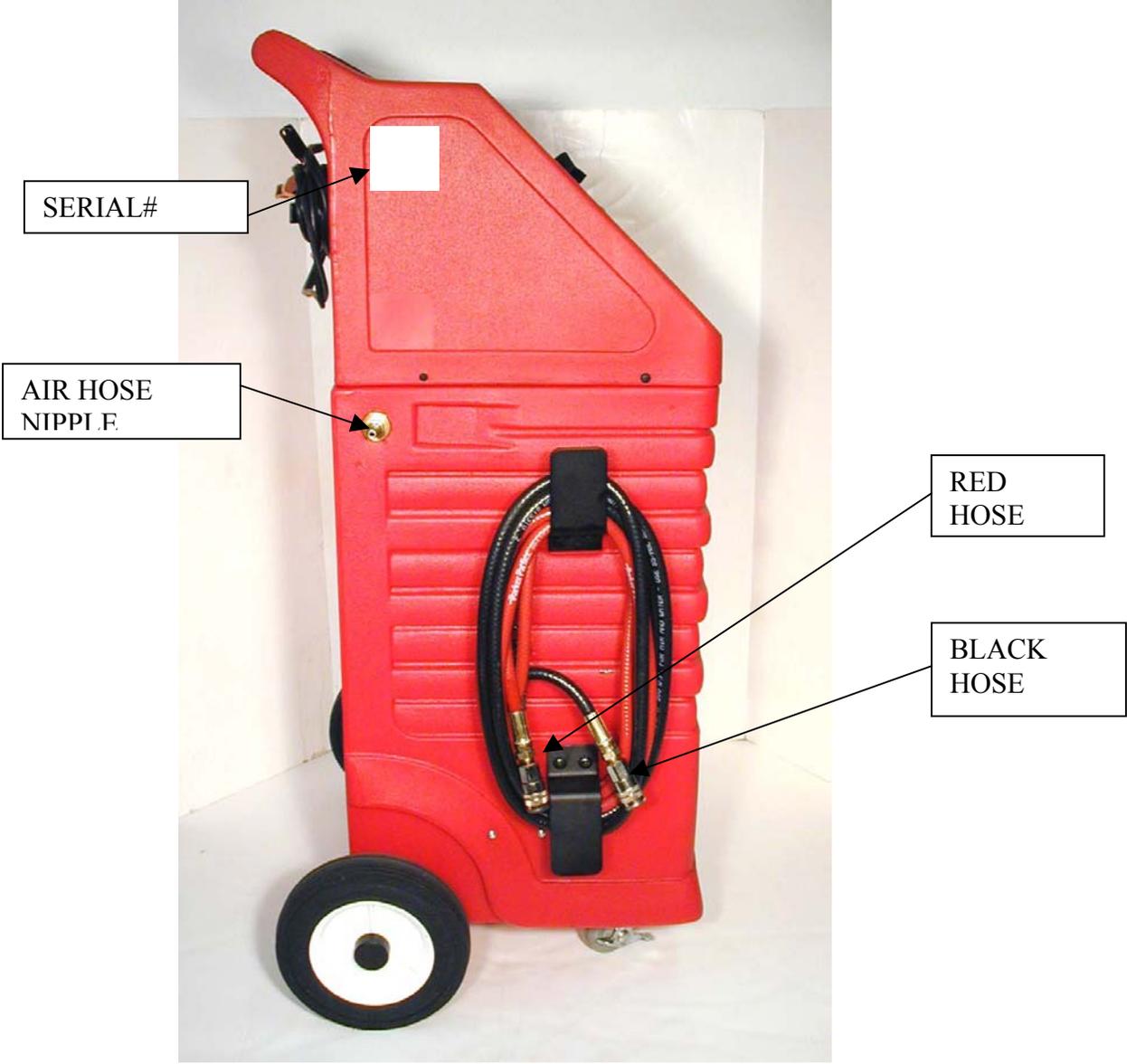
OUTPUT HOSE-

RETURN HOSE-

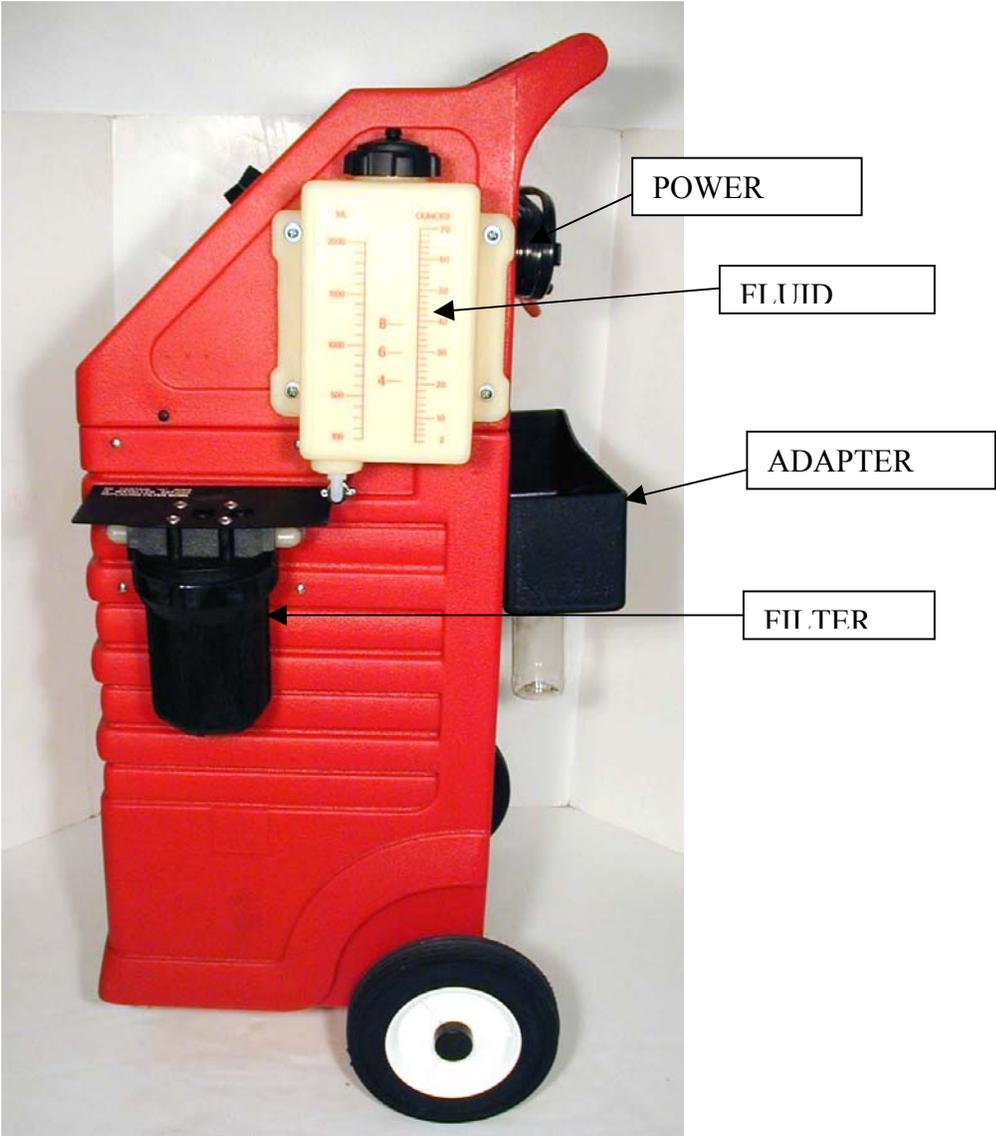
RESERVOIR  
CAP

DETERGENT  
TANK

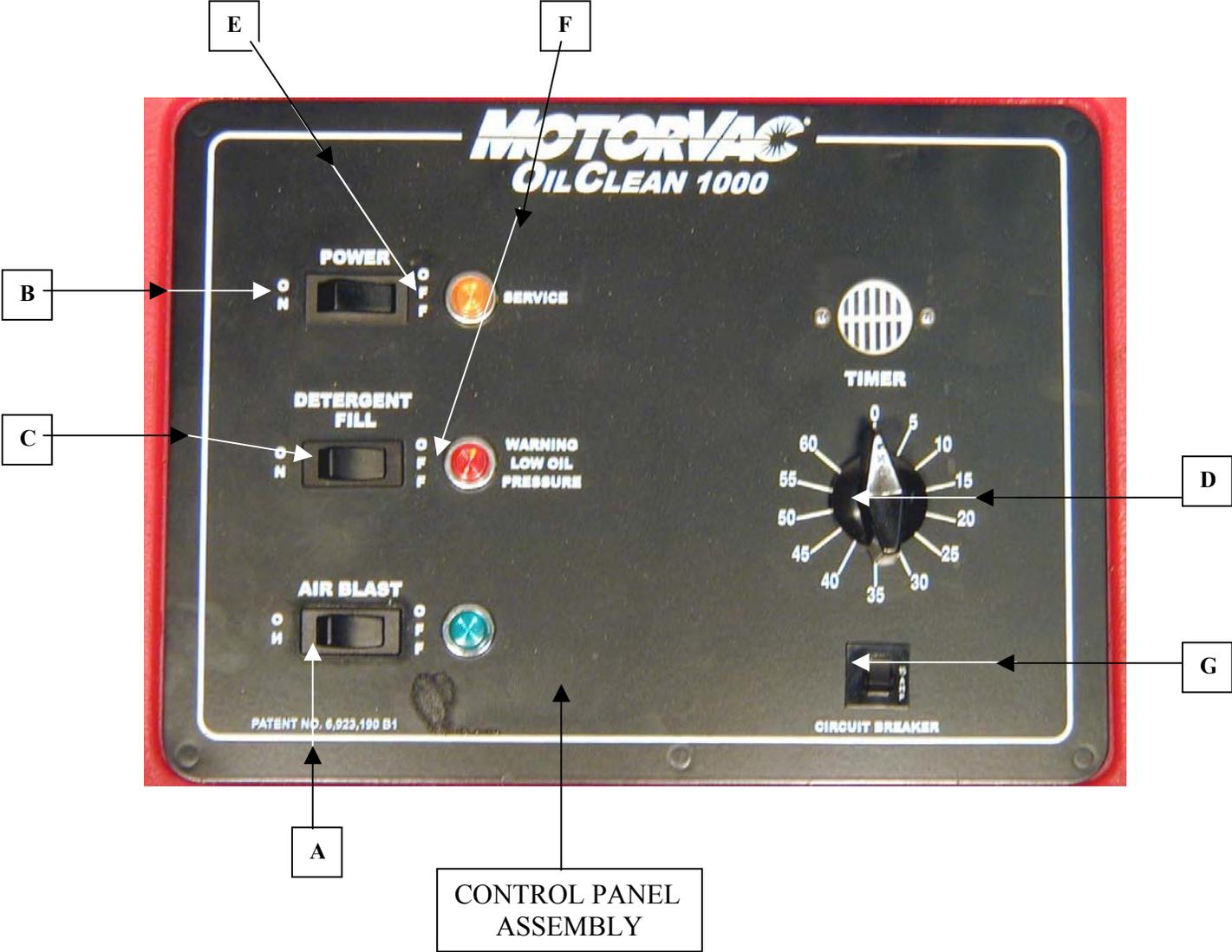
# Left Side View



# Right Side View



# OilClean Control Panel Functions



# OilClean Features and Functions

Descriptions of the control switches, and status indicators making up the control panel are listed below. Please become familiar with these features and functions before using the unit.

- A. Air Release Service Switch** Pressed at end of service to purge any remaining oil/sludge deposits remaining in engine's oil pan and to clear oil pump screen. *Requires that shops air hose be connected to air nipple on side of unit.*
- B. Power on Switch** Press to begin service. Press at end of service after alarm sounds.
- C. Detergent Fill Switch** Activates the fluid pump to inject detergent into vehicle.
- D. Timer Set Switch** Rotate to enter appropriate engine run time. See set up on page 4-3.
- E. Power on light** Activates power to control switches and alarm.
- F. Low oil pressure light** Light and alarm sounds if engine oil pressure drops below 5 pounds.
- G. 15 amp circuit breaker** Protects unit's electrical components.

# Safety Information and Precautions

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## **!! DANGER**

Vehicle exhaust gases contain Carbon Monoxide, which is a colorless and odorless lethal gas.

**Only run engines in well-ventilated areas and avoid breathing exhaust gases.**

*Extended breathing of exhaust gases will cause serious injury or death.*

## **!! WARNING**

Exhaust gases, moving parts, hot surfaces, and potent chemicals are present during the use of the fuel system cleaner.

**Read and understand the operator's manual before using the *MotorVac OILCLEAN-1000 System*™.**

**When using chemicals always refer to the MSDS sheets and manufacturer's instructions for the proper procedure to handle emergency medical treatment, cleanup, handling and storage requirements.**

*Improper use of the OILCLEAN-1000 SYSTSEM or exposure to exhaust gases or cleaning chemicals can cause injury.*

Spilled oil cleaner and vapors can ignite.

**Avoid exposure to flames, sparks, hot engine parts, and other ignition sources.**

**Always keep a fully charged fire extinguisher nearby. The extinguisher should have a class B rating and be suitable for gasoline, chemical, and electrical fires.**

**Cleanup any chemical spills immediately.**

**Dispose of contaminated cleanup material according to governing environmental laws.**

**Keep Cleaner container closed except when filling reservoir.**

**Always verify hose adaptor connections to the engines oil filter adaptor before starting the vehicle's engine.**

*Explosion or flame or exposure to flammable liquid and vapors can cause injury.*

Flammable liquid could splash out of reservoir when pump is on and/or unit is being moved.

**Always keep Reservoir Cap secure except when filling reservoir.**

*Explosion or flame can cause injury.*

**Wear safety goggles.**

**Wear chemical resistant gloves when connecting or disconnecting fitting and adaptors.**

*Explosion or flame or exposure to flammable liquid and vapors can cause injury.*

Chemicals can cause harmful byproducts.

**Use only approved chemicals (refer to operator's manual).**

**Do not swallow or ingest any chemicals.**

**Use with adequate ventilation. Avoid breathing vapors.**

**Do not store chemicals on or in the machine.**

*Improper use of chemicals can cause injury.*

*Over exposure can have harmful effect on eyes, skin, respiratory system and possible unconsciousness and asphyxiation.*

*See next page*

Improperly blocked vehicles can move.

**Set the parking brake and chock the wheels.**

*Moving vehicles can cause injury.*

Moving engine parts.

The engine-cooling fan will cycle on and off depending on the coolant temperature and could operate without the engine running.

**Wear safety goggles.**

**Always keep objects, clothing, and hands away from the cooling fans and engine parts.**

*Moving engine parts can cause injury.*

Hot surfaces are present during and after running the engine.

**Do not contact hot surfaces such as, manifolds, pipes, mufflers, catalytic converters or radiators and hoses.**

*Hot surfaces can cause injury.*

Catalytic converters become extremely hot.

**Do not park a converter-equipped vehicle over dry grass, leaves, paper, or any other flammable material.**

**Do not touch a catalytic converter until the engine has been off for at least 45 minutes.**

**For tests allowing unburned hydrocarbons or service involving operation of an overly rich condition, minimize the time of rich operation, monitor the catalytic converter temperature, and allow at least two minutes of operation at normal mixture subsequent to testing or service for converter cooling.**

*Catalytic converters can cause burns.*

Cracked fan blades can become airborne.

**Examine fan blades for cracks. If found, do not service the vehicle.**

*Flying objects can cause injury.*

Batteries produce explosive gases and can explode.

**Wear safety goggles when working on or near batteries.**

**Use in a well-ventilated area.**

**Keep sparks and flames away from the battery and never lay tools, equipment or other conductive objects on the battery.**

**When tools or equipment is connected to the battery, make sure the equipment power switch is off.**

**Connect the positive lead of the equipment to the positive lead of the battery first; connect the negative lead of the equipment to a solid ground point as far from the battery as possible.**

**Keep battery acid away from skin or eyes. In case of eye contact, flush with clean water for 15 minutes and get medical attention.**

*Battery explosion and ignited gases can cause injury.*

# Before You Begin

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## *First Time Operation*

### **NOTE**

The following is used to **PRIME** your new **MOTORVAC OILCLEAN-1000 SYSTEM**, and is only necessary the first time you use the unit.

### **NOTE**

Do **Not** Operate Machine **Below 50° Fahrenheit (10° Celsius)**.  
Detergent should be used / stored above **50°(10° Celsius)**.

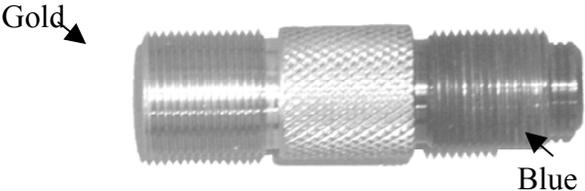
1. Remove OILCLEAN-1000 from box.
2. Install new filter in unit's filter bowl. (See page 4-4) Verify that the O'Ring is securely in place in the plastic filter bowl. **NOTE: Hand tighten filter only. Do not over tighten.**  
Check the output/return hoses, battery connections, and all external components for damage.
3. Open the one-gallon container of OILCLEAN-1000 cleaner detergent included with the starter kit (This Starter Kit supplied in USA & Canada only). Shake container, place a funnel into unit's fill neck and carefully pour the contents into the unit's tank. **Note: The maximum capacity of the unit's reservoir is 72 OUNCES.**
4. Attach the unit to the vehicle's battery by connecting the **red** battery clip to the positive (+) battery terminal and the **black** battery clip to a solid ground point as far from the battery as possible. Press the **MAIN POWER** switch to *on*.
5. Attach the adaptor #065-1033 to *red* OILCLEAN-1000 hose and insert into units tank fill neck.
6. Press and hold the FILL switch until a solid stream of fluid is flowing out the RED hose adapter.
7. The *MOTORVAC* OILCLEAN-1000 System is now ready for service. Press unit's **MAIN POWER** switch *off*.
8. Proceed to Oil System Cleaning Procedures, page 4-1.

# OILCLEAN System Cleaning Procedure

## Determining the Vehicle's Oil Filter Type

It is very important to determine the Oil Filter type on the vehicle to be serviced before performing any setup or cleaning procedure on the vehicle. This can be easily done by referring to the Application Guide and using the Adaptor Insert Thread Gauge (below). Also refer to the Insert Guide Below.

<b>FILTER THREAD SIZE-PITCH</b>	<b>ADAPTER INSERT COLOR</b>	<b>SPIN-ON FILTER ADAPTER HOUSING / COLLAR</b>	<b>CANISTER STYLE</b> See Optional Adaptors in <b>Appendix B</b>
3/4 -16	<b>SILVER</b>	YES with 1-12	
13/16 - 16	<b>BLUE*</b>	YES with 1-12	
18m - 1.5	<b>RED</b>	YES with 1-12	
20m - 1.5	<b>BLUE*</b>	YES with 1-12	
22m - 1.5	<b>YELLOW</b>	YES with 1-12	
1-12	NO INSERT	YES with 1-12	
1-16	NO INSERT	YES with 1-16	
1½ -16	NO INSERT	YES with 1½ -16	
<b>*NOTE: The BLUE insert is used for both (13/16-16 and 20m-1.5)</b>			

	<p>THREAD GAUGE 080-1206 Silver / Red 3/4 - 16 / 18m - 1.5</p>
	<p>THREAD GAUGE 080-1207 Gold / Blue 22m - 1.5 / 13/16 - 16, 20m - 1.5</p>

### **NOTE**

Once you have determined the oil filter type, turn to page 4-3 in this chapter for instructions on how to perform the OilClean setup and cleaning procedure.

## **Service Procedure**

Bring engine to operating temperature, and then check engine oil level. Fill or top off to vehicle manufacturer specifications.

1. Verify new *OilClean* filter element is installed in unit and that the *OilClean*'s filter bowl O'Ring is in place. Refer to page 4-4 showing filter installation. If unit was previously used, see line 21 below for filter bowl purge procedure. Dispose of used filter element in appropriate manner.
  2. Remove engine's oil filter and install correct *OilClean* oil filter adapter housing with insert. (See application guide). Ensure that adapter housing O'Ring is in place.
  3. Connect the *OilClean* hoses to oil filter adapter housing assembly (black to black, red to red).
  4. Connect the unit's power harness to the vehicle's battery by connecting the red battery clip to the positive (+) battery terminal and connecting the black (-) battery clip to a solid ground point as far from the battery as possible.
  5. Verify the *OilClean* MAIN POWER switch is in the ON position.
  6. Note: In cold weather its helpful to start the vehicles engine to circulate hot oil thru the hoses and filter. **Shut the engine off before proceeding.**
  7. Press the "DETERGENT FILL" button. *Note:* Select fill level depending on vehicle crankcase capacity. Hold the button and monitor the level in the fluid tank until the correct amount is pumped into the vehicle.  
    **0 – 5 Quart (0 – 4.7 Liter)..... Use 12 to 16ounces (.47 Liter) of cleaner**  
    **6 – 10 Quart (5.7 – 9.5 Liter)..... Use 24 to 32ounces (.95 Liter) of cleaner**
  8. Set CYCLE TIME (Thirty minutes maximum).  
    **0 – 5 Quart (0 – 4.7 Liter).....10 – 15 minute clean cycle (Recommended)**  
    **0 – 10 Quart (5.7 – 9.5 Liter)...15 – 20 minute clean cycle (Recommended)**
  9. (The alarm will sound until engine oil pressure is achieved). Start engine and Verify Engine Oil Pressure Alarm should go off.
- NOTE: VEHICLE MUST HAVE OIL PRESSURE BEFORE PROCEEDING.**
10. When service is complete, alarm sounds. Stop engine. Turn "POWER" switch off to silence the alarm.
  11. Remove drain plug from engine oil pan and drain oil into suitable container.
  12. Disconnect red hose from the *OilClean* filter adapter assembly. Install optional block-off cap (#065-1055) on red adapter hose fitting or direct red hose toward drain pan.
  13. Remove engine's oil filler cap. Turn "POWER" Switch back on.
  14. Press and hold the "AIR BLAST" switch. To purge any remaining oil/sludge in the engine oil pan and to clear oil pump screen. **NOTE: SHOP AIR HOSE MUST BE CONNECTED TO UNIT FOR AIR BLAST TO WORK!**
  15. Press POWER to OFF position. Remove power cable from vehicle.
  16. Remove black hose from *OilClean* adapter.
  17. Remove *OilClean* adapter from engine.
  18. Install new engine oil filter, and reinstall drain plug in oil pan.
  19. Fill engine with correct amount of clean oil and reinstall oil fill cap.
  20. Start engine and verify no oil leaks.

**Test drive vehicle. Stop engine and do final engine oil level check.**

**The *OilClean* service is now complete.**

**See next page-DRAIN FILTER BOWL while the air supply hose is connected.**

## 21. Filter Bowl Purge Procedure:

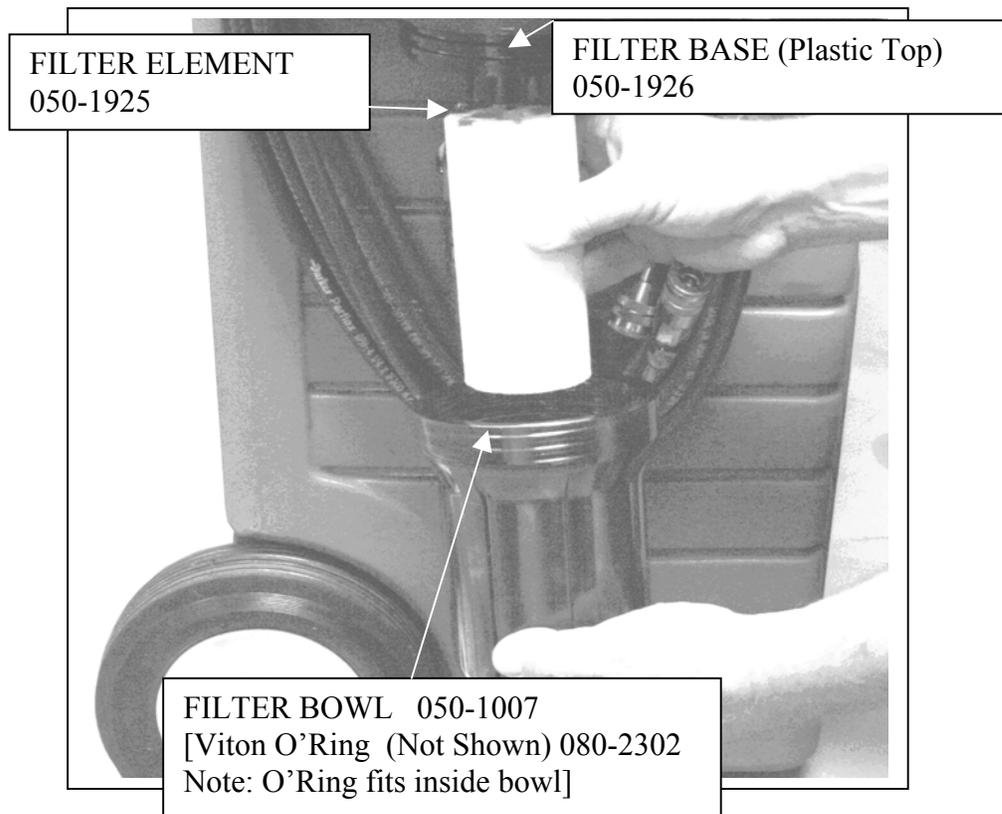
To lower oil level in the filter bowl and decrease oil spillage when replacing units filter:

- Attach the unit to a 12 volt battery by connecting the **red** battery clip to the positive (+) battery terminal and the **black** battery clip to the negative (-) battery terminal.
- Next install open-end adaptor (#065-1033) into red hose and place into suitable container. Press the *AIR BLAST* button. Allow purging into suitable container until fluid flow ends. Filter bowl is now purged. Turn off unit and disconnect power harness from battery. Remove adaptor from red hose. Unit is now ready for filter replacement.

## EXTERNAL FILTER, REMOVE / REPLACE

NOTE: Place drain pan underneath filter bowl Turn filter bowl clockwise to remove. Remove old filter. Install new filter (050-1925) by pushing up into filter base 050-1926. Before installing filter bowl, verify Viton O’Ring is installed in filter bowl. Install filter bowl and turn counter clockwise to tighten. Caution, hand tighten only.

Part number for **FILTER BASE AND BOWL ASSEMBLY** is 200-8611, which does include two elbow fittings (030-4805). Note: does **not** include steel mounting bracket (011-0068).



# Troubleshooting and Additional Help

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Refer to the list below in the unlikely event that you have problems with your **OilClean 1000**.

<b>Problem:</b>	<b>Solution:</b>
1. <b>The OilClean is not operational or trips breaker immediately.</b>	Polarity is reversed on vehicle battery connection. Check connections for correct polarity. Check circuit breaker on front of the cabinet.
2. <b>Units <i>Vehicle Oil Pressure</i> Light stays on when Engine is started.</b>	Output and Return hoses may be reversed. Check hoses for correct connection.
3. <b>Fluid does not flow from tank to vehicle when detergent fill switch is held on.</b>	Engine must be OFF. (Not running). Engine oil may be cold. (Warm up engine & cycle warm oil thru units' hoses & filter). Internal screen filter may be plugged up. Pump may need to be 'primed'.
4. <b>The OilClean performs poorly.</b>	Check all hoses and wires for cuts or frays. Check cabinet for dents or impact markings. Verify that the oil filter was replaced.
5. <b>Sudden pressure <u>drop</u> on Vehicle Pressure Gauge.</b>	Blockage or restriction in black hose.

## **ADDITIONAL HELP**

**Please verify that items 1- 5 above have been reviewed before calling for additional assistance have your model and serial numbers available:**

**In the unlikely event that problems persist with the OilClean, call: *Your Local Distributor***

**Or: MOTORVAC TECHNOLOGIES INC.  
1431 S. VILLAGE WAY  
SANTA ANA, CA 92705 USA**

**714.558.4822  
800.841.8810**

# **Maintenance Procedures**

**The following maintenance procedures should be performed on a routine basis: BEST DONE AFTER A SERVICE HAS BEEN COMPLETED.**

1. Clean the exterior with a non-abrasive cleaning agent or similar product to keep the cabinet looking new. Check the cabinet for dents or impact markings.
2. Check all hoses and wires for cuts or frays.

Enter initials, date, and a check mark in the appropriate boxes of the Maintenance Record at the end of the chapter.

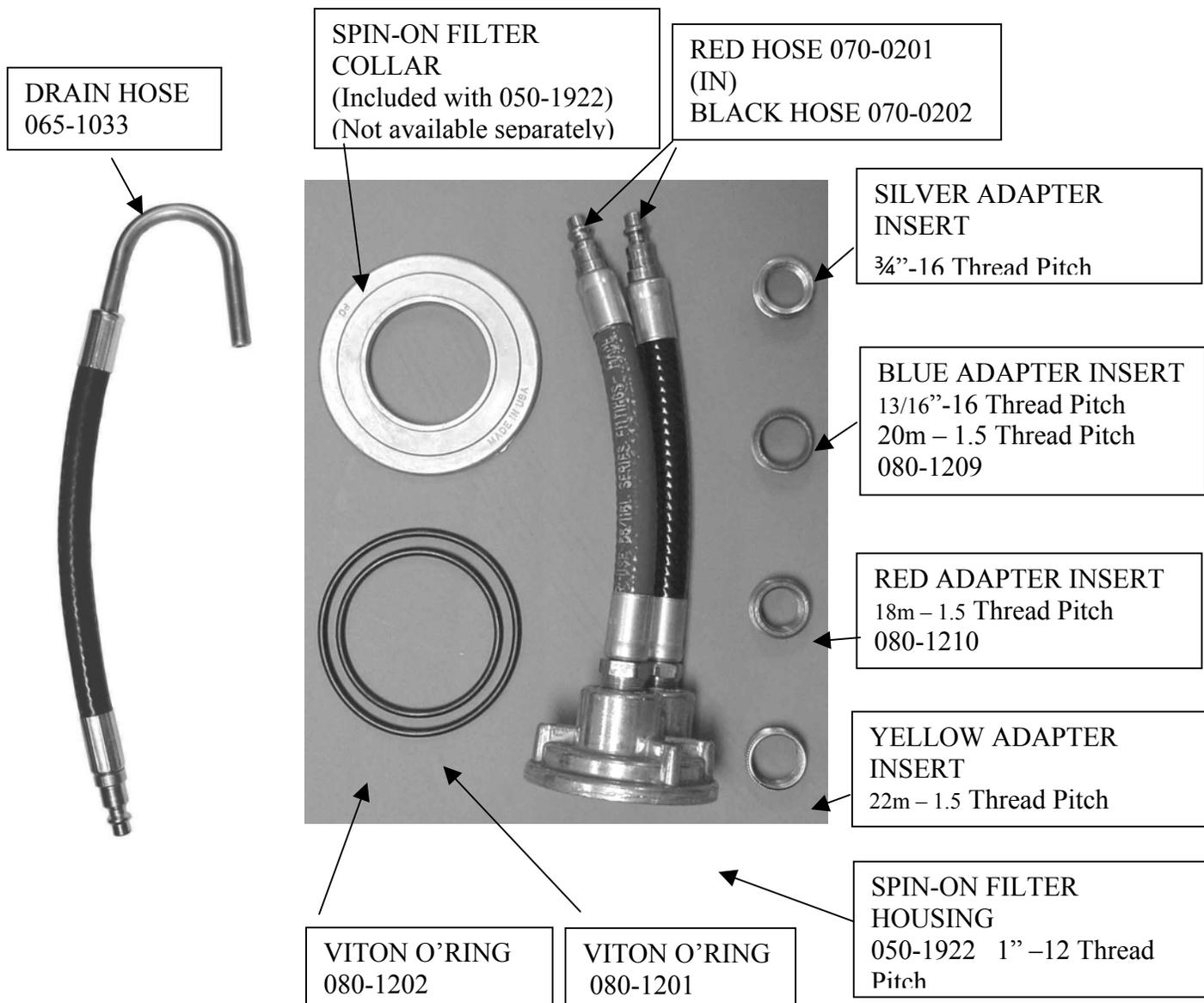
## **Replacing the In-line Detergent Output Filter.**

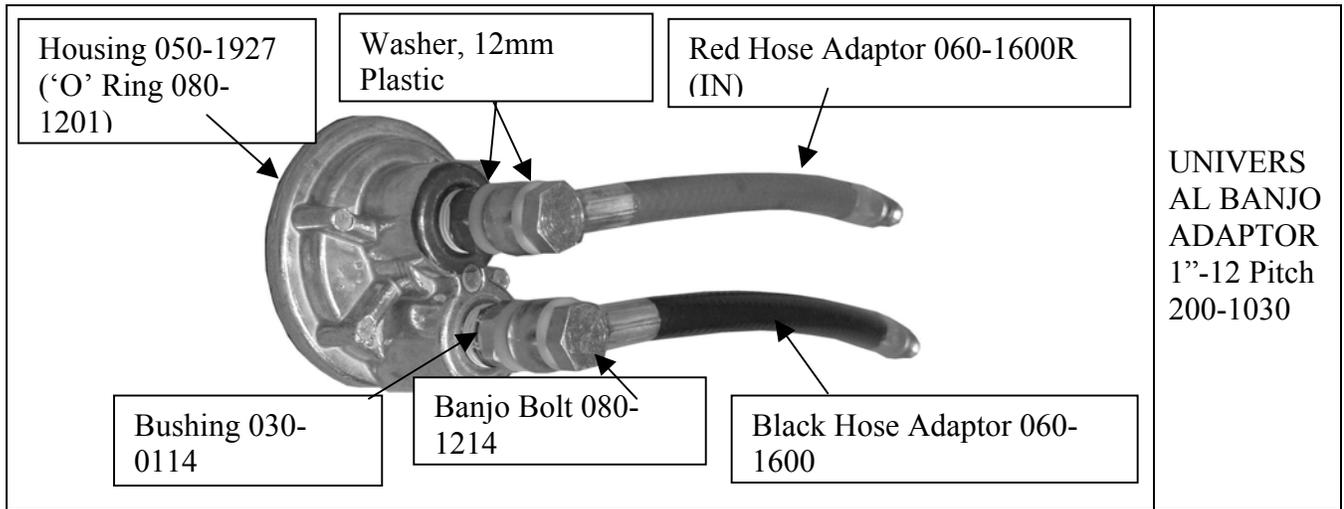
1. Once a year remove back of unit. Remove the hairpin clip from slot in filter (050-1000). Separate the filter halves by pushing together and rotating counter clockwise. Clean the filter screen and reassemble.



# Appendix B - System Accessories

## Basic Adaptor Kit 200-3112





### Optional Adaptors

PARTS INCLUDED	DESCRIPTION & NO
<p>080-1203 O'Ring (Large)</p> <p>080-1202 O'Ring (Medium)</p> <p>Red Hose 070-0203</p> <p>050-1923 Housing</p>	<p><b>200-1028 SPIN-ON FILTER HOUSING ASSEMBLY</b>  <b>FORD Diesel Application</b>            1 1/2" -16 Thread Pitch            (Includes two Viton O'Ring)            Red Hose 070-0203 (IN)            Black Hose 070-0204</p>
<p>080-1202 O'Ring (Medium)</p> <p>080-1201 O'Ring (Small)</p> <p>Red Hose 070-0203</p> <p>050-1924 Housing</p>	<p><b>200-1029 SPIN-ON FILTER HOUSING ASSEMBLY</b>  <b>DODGE Diesel Application</b>            1" -16 Thread Pitch            (Includes two Viton O'Ring)            Red Hose 070-0203 (IN)            Black Hose 070-0204</p>
	<p><b>065-1034 CANNISTER STYLE</b>  <b>Mercedes Benz Application</b>            V6 2.8, 4.3 (1998-2000)</p>

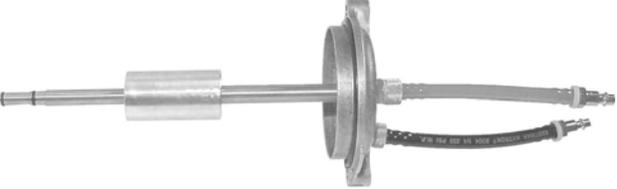
	<p><b>065-1035 CANNISTER STYLE</b>  <b>BMW Application</b>  <b>L6 2.5 (1997-2000)</b></p>
	<p><b>065-1036 CANNISTER STYLE</b>  <b>BMW Application</b>  <b>L6 3.2 (1993-2000)</b>  Note: Two stems are supplied with this adaptor. Select the correct length stem to match the vehicles stem.</p>

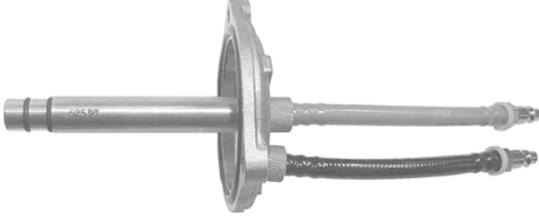
**Optional Adaptors**

PARTS INCLUDED	DESCRIPTION & NO
	<p><b>065-1037 CANNISTER STYLE</b>  <b>BMW Application</b>  <b>L4 1.9 (1995-1999)</b></p>
	<p><b>065-1038 CANNISTER STYLE</b>  <b>BMW Application</b>  <b>V8 4.0 (1990-2000)</b></p>
	<p><b>065-1039 CANNISTER STYLE</b>  <b>BMW Application</b>  <b>V8 4.0, 4.4, V12 (1990-2000)</b></p>
	<p><b>065-1040 CANNISTER STYLE</b>  <b>Olds Intrigue Application</b>  <b>V6 3.5</b></p>

	<p><b>065-1041 CANNISTER STYLE Mercedes Benz Application V8 4.2 (1971-1991)</b></p>
	<p><b>065-1042 CANNISTER STYLE VW Diesel Application L4 1.9</b></p>
	<p><b>065-1043 CANNISTER STYLE Mercedes Benz Application L4 2.2 &amp; 2.3 (1992-2000)</b></p>

**Optional Adaptors**

<p><b>PARTS INCLUDED</b></p>	<p><b>DESCRIPTION &amp; NO</b></p>
	<p><b>065-1044 CANNISTER STYLE Mercedes Benz Application L4 Diesel (1984-2000)</b></p>
	<p><b>065-1045 CANNISTER STYLE Mercedes Benz Application L4 &amp; L5 Diesel (1976-1995)</b></p>
	<p><b>065-1046 CANNISTER STYLE PORSCHE Application F6 3.2, 3.6</b></p>
	<p><b>065-1047 CANNISTER STYLE Mercedes Benz Application V8 5.0 (1991-2000)</b></p>

	<p><b>065-1048 CANNISTER STYLE ACURA Application (1991-2000)</b></p>
	<p><b>065-1049 CANNISTER STYLE VW, Application V6 2.8 (1991-2000)</b></p>
	<p><b>065-1050 CANNISTER STYLE Catera, Saturn Application V6 3.0 (1997-2000)</b></p>

### Optional Adaptors

PARTS INCLUDED	DESCRIPTION & NO
	<p><b>065-1051 CANNISTER STYLE GM Application 2.5 with oil filter in pan</b></p>
	<p><b>065-1052 CANNISTER STYLE MB Diesel Application V64.0 (1996-2001)</b></p>
	<p><b>065-1053 CANNISTER STYLE SATURN Application L4 2.2 (2000-2002)</b></p>
	<p><b>065-1054 CANNISTER STYLE VOLVO Application All Models</b></p>



**065-1055** BLOCK-OFF for Red Hose of Spin-On Filter Housing. (Used in certain applications, for example, G.M. Vortec, to prevent air blast from passing out of Red Hose during the Air Release Service.)

# Appendix D

Product Identity: Crankcase Cleaner

Part No: 400-0146, 400-0147

Page: 1 of 6

## Material Safety Data Sheet

Approved by U.S. Dept., essentially similar to form OSHA 174.

**IMPORTANT:** Read this MSDS before handling and disposing of this product.

Pass this information on to employees, customers, and users of this product.

### SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identity: Crankcase Cleaner

MotorVac Technologies, Inc.

1431 S. Village Way

Santa Ana, Ca 92705

USA

Effective: 08/07/01

Printed: 05/04/06

**Tel:** (714) 558-4822

24-hour Emergency Phone, Chemtrec: 01-703-527-3887

### SECTION 2. INGREDIENT & REGULATORY INFORMATION

All components of this product are on the TSCA List. SARA Title III Section 313 Supplier Notification.

This product contains the indicated <\*> toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be included in all MSDS's that are copied and distributed for this material.

<u>SARA TITLE III INGREDIENTS</u>	<u>CAS#</u>	<u>Wt.%(Reg.Section)</u>	<u>RQ (lbs.)</u>
Light Aromatic Solvent Naphtha	*64742-95-6	Not appl. (311,312)	None
*1,2,4-Trimethylbenzene	95-63-6	7 (311,312,313,RCRA)	None
*2-Butoxyethanol	111-76-2	8 (313)	None
Zinc salt	26566-95-0	2(311,312)	None
Specific chemical identity withheld as trade secret	N/A	Not appl. (311,312)	N/A

SARA SECTION 311/312 HAZARDS: Acute Health, Chronic Health, Fire.

<u>MATERIAL</u>	<u>CAS#</u>	<u>TWA + (OSHA)</u>	<u>TLV (ACGIH)</u>
Light Aromatic Solvent Naphtha	*64742-95-6	100 PPM	5 mg/m <sup>3</sup>
1,2,4-Trimethylbenzene	95-63-6	25 PPM	25 PPM
2-Butoxyethanol	111-76-2	25 PPM (S)	25 PPM (S)
Zinc salt	26566-95-0	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Specific chemical identity withheld as trade secret	N/A	25 PPM (S)	25 PPM (S)

<u>MATERIAL</u>	<u>CAS#</u>	<u>CEILING</u>	<u>STEL(OSHA/ACGIH)</u>
Specific chemical identity withheld as trade secret	N/A	Not known	40 PPM

<u>MATERIAL</u>	<u>CAS#</u>	<u>Lowest known lethal dose data</u> <u>Lowest known LC50 (vapors)</u>
2-Butoxyethanol	111-76-2	700 PPM (mice)

Hazards; Health (NFPA): 2    Health (HMIS): 3    Flammability: 2    Reactivity: 0

Balance of ingredients:        Non-Hazardous

9 Octadecanoic acid (z) ammonium salt CAS#: 544-60-5

California Proposition 65:    This product contains no known chemical to the State of California to cause cancer or reproductive toxicity.

### **SECTION 3. HAZARDOUS IDENTIFICATION**

Threshold limit value: Not applicable

Contains: Petroleum Naphtha, 2-Butoxyethanol

**Warning!**  
**Combustible!**  
**Acute Hazards**

#### **Eye & Skin Contact:**

Primary irritation to skin, defatting, dermatitis. Absorption through skin increases exposure.

Primary irritation to eyes, redness, tearing, blurred vision.

Liquid can cause eye burns. Wash thoroughly after handling.

#### **Inhalation:**

Anesthetic. Irritates respiratory tract. Acute overexposure can cause serious nervous system depression. Vapor harmful.

Breathing vapor can cause irritation.

Acute overexposure can cause damage to kidneys, blood, nerves, liver, and lungs.

#### **Swallowing:**

Harmful or fatal if swallowed.

Swallowing can cause abdominal irritation, nausea, vomiting and diarrhea.

#### **Subchronic Hazards / Conditions Aggravated**

#### **Subchronic hazards:**

Absorption through skin may be harmful. Chronic overexposure can cause damage to kidneys, blood, nerves, liver & lungs.

**Conditions aggravated:**

Persons with severe skin, liver, heart, lung or kidney problems should avoid use.

**Chronic hazards:**

This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA, or ACGIH, as of this date, greater or equal to 0.1%.

This product may contain less than 1 PPM of benzene.

Not considered hazardous in such low concentrations.

**SECTION 4. FIRST AID MEASURES PROCEDURES****Eye Contact:**

Immediately flush with plenty of water for 15 minutes & call a physician.

**Skin Contact:**

Immediately remove contaminated clothing. Wash skin thoroughly with soap and water. Wash contaminated clothing before reuse. (Discard contaminated shoes.)

**Inhalation:**

After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen.

If breathing has stopped give artificial respiration. Call a physician immediately!

**Swallowing:**

Call a physician immediately! Do not induce vomiting. Never give anything by mouth to an unconscious person. Have patient lie down and keep warm. Vomiting may lead to pneumonitis, which may be fatal.

**SECTION 5. FIRE FIGHTING MEASURES**

Lower flammable limit in air (% by vol.): 1.0

Flash point (test method): 112°F/ 44.4°C (TCC) (lowest component)

Flammability classification: Class II

**Extinguishing media:**

NFPA Class B extinguishers (carbon dioxide or foam) for Class II liquid fires.

**Special fire fighting procedures:**

Water spray may be ineffective on fire but can protect fire fighters and cool closed containers. Use fog nozzles if water is used. Do not enter confined fire-space without full bunker gear. (Helmet with face shield, bunker coats, gloves & rubber boots). Use NIOSH approved positive-pressure self-contained breathing apparatus.

**Unusual explosion and fire procedures:****Combustible!**

Keep container tightly closed. Isolate from oxidizers, heat, & open flame. Closed containers may explode if exposed to extreme heat. Applying to hot surfaces requires special precautions. Empty container very hazardous! Continue all label precautions!

## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

### **Spill or leak procedures:**

Stop spill at source. Dike area & contain. Clean up remainder with absorbent materials. Mop up and dispose of.

### **Waste disposal method:**

Recycle or dispose of observing local, state & federal health, safety & pollution laws. If questions exist, contact the appropriate agencies.

### **Other precautions:**

None.

## **SECTION 7. HANDLING AND STORAGE**

### **Handling:**

Isolate from oxidizers, heat, and open flame. Use only with adequate ventilation. Avoid breathing of vapor or spray mist. Do not get in eyes, on skin or clothing. Wear OSHA standard goggles or face shield. Consult safety equipment supplier. Wear gloves, apron and footwear impervious to this material. Wash clothing before reuse. Avoid free fall of liquid. Ground containers when transferring. Do not flame cut, braze, or weld. Empty container very hazardous! Continue all label precautions!

### **Storage:**

Do not store above 49°C/120°F. Store large amounts in structures made for OSHA Class II liquids. Keep container tightly closed and upright when not in use to prevent leakage.

## **SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**

### **Exposure controls:**

None necessary.

### **Ventilation:**

<b>Local exhaust:</b>	Necessary
Mechanical (general):	Acceptable
Special:	None
Other:	None

### **Personal protection:**

Wear OSHA standard goggles or face shield. Consult safety equipment supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse.

## SECTION 9. PHYSICAL DATA

Appearance:	Liquid, amber color
Odor:	Ammonia odor
Boiling Range:	100 172 204°C/ 212 343 400°F
Specific gravity (water = 1):	0.92
Pounds/gallon (lbs./gal):	7.66
VOC's (vapor pressure > 0.44 lbs./in <sup>2</sup> ) (lbs./gal):	0.000
Total volatile organic compounds (TVOC) (gr/lt):	595.0
Vapor pressure (mm of HG)@20°C:	1.6
Vapor density (air = 1):	4.3
% Volatile by vol.:	100.0

## SECTION 10. REACTIVITY DATA

Stability: Stable

Conditions to avoid: Isolate from oxidizers, heat, and open flame.

Material to avoid: Isolate from strong oxidizers such as permanganates, chromates and peroxides.

Hazardous decomposition products: Carbon monoxide, carbon dioxide from burning.

Hazardous polymerization: Will not occur.

## SECTION 11.

**Not available**

## SECTION 12.

Not available

## SECTION 13. DISPOSAL CONSIDERATIONS

This product is considered a hazardous waste. May be incinerated or burned in a RCRA licensed facility.

## SECTION 14. TRANSPORTATION INFORMATION

**\*Note the information below are just guidelines. It is the responsibility of the shipper to ensure that all the proper procedures are followed.**

When shipped by ground (U.S.A.), not regulated ref. CFR 173.150

When shipped by ground (U.S.A.), in drums: not regulated

When shipped by air:

(NOT APPLICABLE TO DRUMS)

D.O.T. CFR 49 proper shipping name: Consumer commodity

Hazardous Class: 9

UN Number: ID 8000

Packing Group: N/A Packing Instruction: 910

Transportation Details: Permitted in Passenger and Cargo Aircraft (in appropriate quantities), Non-Radioactive

DRUMS: D.O.T. CFR 49 proper shipping name: Petroleum distillates, n.o.s.

Hazardous Class: 3 UN Number: 1268

Packing Group: III Packing Instruction: 310

Transportation Details: Cargo Aircraft Only, Non-Radioactive

## SECTION 15. REGULATORY INFORMATION

California proposition 65: This product contains no known chemical known to the State of California to cause cancer or reproductive toxicity.

## SECTION 16

Not available

### Notice

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to accurate, we make no representations as to its accuracy or sufficiency. Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

# Appendix C - Parts

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## ***Service Parts for the OILCLEAN 1000***

Please refer to the part numbers below when ordering parts for this unit.

<b><u>Part #</u></b>	<b><u>Description</u></b>
010-0027	Wheel – 8” x 1.75” Rubber
010-6060	Reservoir Cap, Vented
010-5602	Adapter Box
010-1052	Bottle (for Adapter Box)
040-1200	Screw 5/8 php x #6 (for adapter box)
040-2000	Flat washer #6 (for adapter box)
040-2200	Threaded standoff (for adapter box)
020-8043	Harness, power
020-8204	Circuit Breaker, 10 ampere
020-0153	Timer
020-0154	Knob for timer
020-1205	On / Off Switch
020-1201	Rocker switch
200-8103	Red Output hose Assembly
200-8104	Black Return hose Assembly
080-0230	Female Quick Disconnect Coupler
080-1207	Adaptor Insert Thread Gauge (Blue/Yellow)
080-1206	Adaptor Insert Thread Gauge (Silver/Red)
200-3112	Basic Adaptor Kit (included)
200-8502	Operator Manual
100-0470	Application Guide
200-8800	Starter Kit (8 Filters, 1gal of Cleaner Detergent)
050-1925	Filter Cartridge (one)
400-0145	1 Gallon Cleaner Detergent
050-1007	Filter Bowl
080-2302	O’Ring - Filter Bowl

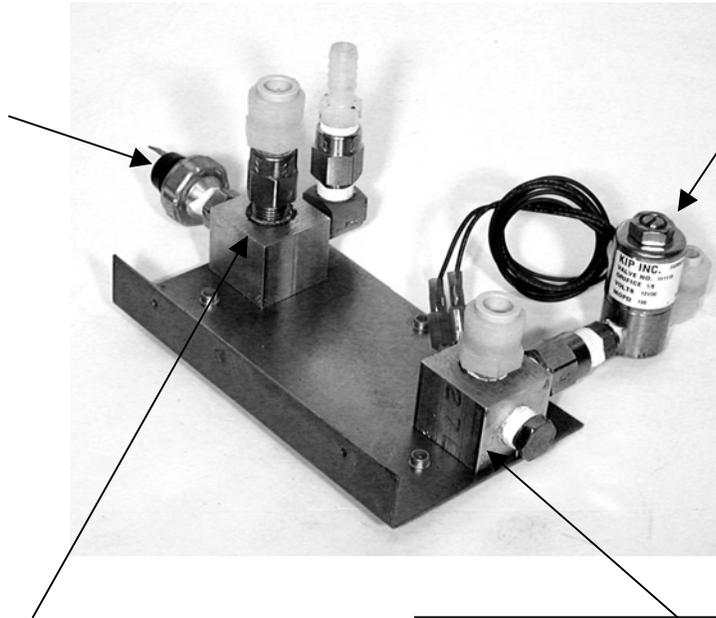
PUMP # 050-2408



FILTER ASSEMBLY #200-



OIL PRESSUREE



SOLENOID #050-2006

**OUTPUT BLOCK ASSEMBLY #200-3805 – INCLUDES:**

- 030-0112 Manifold block
- 050-2205 Pressure switch
- 050-3009 1 lb. check valve (2)
- 030-0031 Elbow-1/4"mpt X 1/4"fpt
- 030-3102 Union, 1/4"mpt X 1/8"fpt
- 030-3092 Hex nipple-M 1/4"npt/stl
- 030-4005 conn-male 3/8" X 1/4" kynar
- 030-4006 conn-m 1/4" mpt X 3/8" barb NY

**RETURN BLOCK ASSEMBLY #200-3806 INCLUDES:**

- 030-0112 Manifold block
- 050-3009 1 lb. check valve
- 030-3092 Hex nipple-M 1/4" npt stl
- 030-3103 Pipe plug 1/4" mpt stl
- 030-4803 elbow, 1/4" fpsh X 1/4"npt kynar
- 030-4005 conn male 3/8" T X 1/4" m kynar

## **ORDERING PARTS**

Parts for the unit may be ordered by calling Customer Service, have your model and serial numbers available:

**MOTORVAC TECHNOLOGIES INC.  
1431 S. VILLAGE WAY  
SANTA ANA, CA 92705 USA**

**PHONE: 800.841.8810 - 714.558.4822  
FAX: 714.558.0754**