

OIL PRO



SERIES

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ADVANTAGE
ENGINEERING



OIL PRO

X SERIES

OPERATIONS MANUAL



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I. INTRODUCTION

OIL PRO X-SERIES

Congratulations on the purchase of your OIL PRO engine flush system.

The OIL PRO system, with specially formulated Advantage Engineering Engine Flush Solution and Filters is a safe, easy to use, quick, and efficient way of reducing sludge buildup in passenger and light truck engines. With the adapters provided (and optional adapters available), almost all cars and light trucks can be serviced.

The OIL PRO system removes virtually all of the carry over all not normally removed with the typical oil change. The Advantage Engineering Engine Flush Solution dissolves and suspends contaminant buildup, and the Advantage Engineering Filters remove those damaging components not normally caught by the factory specification filter.

Menu driven, the OIL PRO system can perform "static" (engine not running) services. In most cases, a complete service can be provided in approximately 15 minutes or less after the normal oil change.

Customers have "clean oil" after a OIL PRO engine flush, the benefits of a "complete" oil change. Emission reductions resulting from a reduction in unburned hydrocarbons, a smoother running engine due to reduced friction, and increased performance are other benefits that may be realized.

- The OIL PRO system can be used practically anywhere and with almost all vehicles
- Compact and mobile, the self-contained system provides ample storage for solution, filters, adapters, and accessories.
- Convenient menu driven software allows the system operator to perform engine flush services quickly and efficiently
- Adapters for spin on and canister adapter equipped engines are available for almost all cars and light trucks sold in the North American marketplace

II. SAFETY INFORMATION

1.01 IMPORTANT SAFETY NOTICE

For your safety, read this manual thoroughly before operating your OIL PRO system. Your OIL PRO system is intended for use by properly trained, skilled professional automotive technicians. The safety messages presented below and throughout this user's manual are reminders to the operator to exercise care when using this unit. Before using your OIL PRO system, always refer to and follow the safety messages and applicable service procedures provided by the manufacturer of the vehicle being serviced.

- **Read All Safety Instructions**

Read, understand and follow all safety messages and instructions in this manual. Safety messages in this section of the manual contain a signal word with a three-part message and, in some instances, an icon.

- **Signal Words**



DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.



WARNING

Indicates an imminently hazardous situation which, if not avoided, may result in death or serious injury to the operator or to bystanders.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury to the operator or to bystanders.

IMPORTANT

Indicates a situation which, if not avoided, may result in damage to the OIL PRO system or the vehicle being serviced.

- **Safety Messages**

Safety messages in this section contain three different type styles:

- Normal type states the hazard.
- **Bold type** states how to avoid the hazard.
- *Italic type* states the possible consequences of not avoiding the hazard.

• Safety Symbols

A safety symbol, when present, gives a graphical description of the potential hazard, and how to avoid the hazard:



Risk of Fire



Read Instructions Before Use



Risk of Explosion



Mandatory Eye Protection



Risk of Entanglement



Mandatory Protective Gloves



Risk of Electrical Shock



Mandatory Protective Clothing



Dangerous Fumes



Do Not Pull or Move

1.02 IMPORTANT SAFETY INSTRUCTIONS

DANGER



Vehicle gases contain Carbon Monoxide, which is a colorless & 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



Improper use and operation.

- **Read, understand and follow all safety messages and operational procedures in this manual before operating the OIL PRO system.**
- **This equipment should be operated only by qualified personnel.**
- **Use this equipment only as described in this manual.**

Improper use and operation of this product can result in injury.

WARNING



Exhaust gases, moving parts, hot surfaces, and potent chemicals may be present during use of the oil flush equipment.

- **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 oil flush equipment or exposure to exhaust gases, moving parts, hot surfaces, or moving parts may cause injury.

WARNING



Electrical shock can result from absence of grounding plug.

- **Do not remove or bypass the grounding prong in any electrical plug. Electrical shock can cause injury.**

WARNING



Risk of expelling pressurized fluids.

- **Verify that engine and machine are off before connecting or disconnecting lines and adapter hoses.**

- Keep the service hoses away from hot or moving engine parts. Hoses can split or burst causing fluid to be expelled.
- Tighten all connections properly.

Chemicals may cause respiratory tract and/or skin and eye irritation.

- Use only approved chemicals (refer to operator's manual).
- Use safety glasses and protective clothing when handling chemicals.
- Do not ingest chemicals or breathe vapors
- Treatment methods are as follows:

Eyes: Flush eyes with plenty of water.

Skin: Wash with soap and water.

Inhalation: Move to uncontaminated area.

Ingestion: If large amount, get medical attention.

If any irritation persists, get medical attention.

- Dispose of used fluid according to environmental laws and regulations.

Although motor oil and engine flush solution pose no significant health hazards, some individuals may experience adverse reactions upon contact. Pressurized fluid can cause serious injury.



WARNING

Risk of unexpected vehicle movement.

- Block drive wheels before starting vehicle's engine to begin an exchange.
- Unless instructed otherwise, set parking brake and put gear selector in park.
- Do not leave a running vehicle unattended.

A moving vehicle can cause injury.



WARNING



Engine has moving parts. Risk of entanglement.

- Do not place tools on fenders or other places in engine compartment.
- Keep yourself, clothing, adapters and service hoses clear of moving parts such as fan blades, belts and pulleys.
- Wear safety goggles (user and bystanders).

Moving components can cause injury.

 **WARNING**

Risk of burns.

- Wear gloves when working near hot engine components.
 - Do not touch hot exhaust systems, manifolds, engines, radiators, etc.
- Hot components can cause injury or discomfort.*

 **WARNING**

Risk of injury.

- This equipment should be operated by qualified personnel only.
- Use this equipment only as described in this manual.
- Loop the power cord loosely in its proper location when machine is not in use.
- Do not operate equipment with a damaged power cord or hoses, or if the equipment has been dropped or damaged, until it has been examined by a qualified service representative.
- Care should be taken to arrange the power cord and service hoses so that they will not be tripped over or pulled.
- Never pull on the power cord or service hoses to transport the OIL PRO system. Damage may occur to these components, or machine may tip over.
- Keep area of operation clear of unnecessary tools and equipment. Utilize hinged storage area on the top of the machine.
- Never leave the machine running unattended.
- The OIL PRO system is not designed for any other purpose than the flushing of the lubrication system.

Operation of your OIL PRO system by anyone other than qualified personnel may result in injury.

 **CAUTION**

Risk of equipment damage.

- Flushing high mileage cars that have not been previously serviced can cause operating problems in the engine.
- Servicing, transporting, or storing this machine in an attitude other than the normal operating position can result in fluid spillage and/or component damage.
- Use only the manufacturer's recommended attachments.
- The OIL PRO system is fully automatic. Refer to your control panel at all times.
- Never pull on the power cord or service hoses to transport the OIL PRO system. Damage may occur to these components, or machine may tip over.
- Periodically clean the machine by wiping down with a clean, soft, dry cloth.

Improper operation of equipment may result in damage to machine or components.

SAVE AND FOLLOW THESE INSTRUCTIONS!

III. SYSTEM FEATURES & SPECIFICATIONS

2.01 FEATURES

Application

- Automatically flushes and cleans vehicle lubrication system of most cars and light trucks
- Removes carryover oil and accumulated contaminants in engine crankcases.
- Profitable add-on service for quick lube shops, mass merchants, auto dealers, general repair shops, specialty repair, collision repair, etc.

Functions

- Static cleaning process
- Automated service (approx. 10 minutes)
- Thorough, effective four-stage cleaning process
- Closed loop, pressurized system injects and extracts flush solution automatically
- Standard adapter set includes adapters for virtually all North American market screw-on filter vehicles
- Optional canister adapters for virtually all North America market and imported canister-filter equipped vehicles
- Patented adapter design for quick and secure attachment/detachment
- Uses only Advantage Engineering filters and flush solution (non-solvent) disposable in the waste oil stream
- Sixteen (16) services per solution change

Cabinet Features

- Composite cabinet
- Ergonomically correct working height
- 9" rigid rear wheels
- 4" swivel casters with brakes
- 8 U.S. gallon solution reservoir
- 13' external nylon reinforced Hytron hoses

Electronic Control

- 6 character display
- Programmable heater time clock for automatic pre-heating of flush solution
- Keypad with flush, fill, drain, total count, set clock, heater time set, and pause/abort function keys
- Audible alarm and warning messages

2.02 DIMENSIONS & TECHNICAL SPECIFICATIONS

Specifications

- Eight (8) U.S. gallon tank
- 12' external nylon reinforced Hytron hoses
- 9" rigid rear wheels
- 4" swivel caster with brakes
- Electrical requirement: 120 VAC 13.0 AMPS
- Weight (uncrated): 95 lbs. (43 kgs) including adapters
- Dimensions: 18" (46 cm) wide
24" (61 cm) deep
60" (24 cm) high
- One (1) year limited warranty

Standard Accessories

- Standard domestic adapter kit 0120-10-01-0

Required Solution/Filter

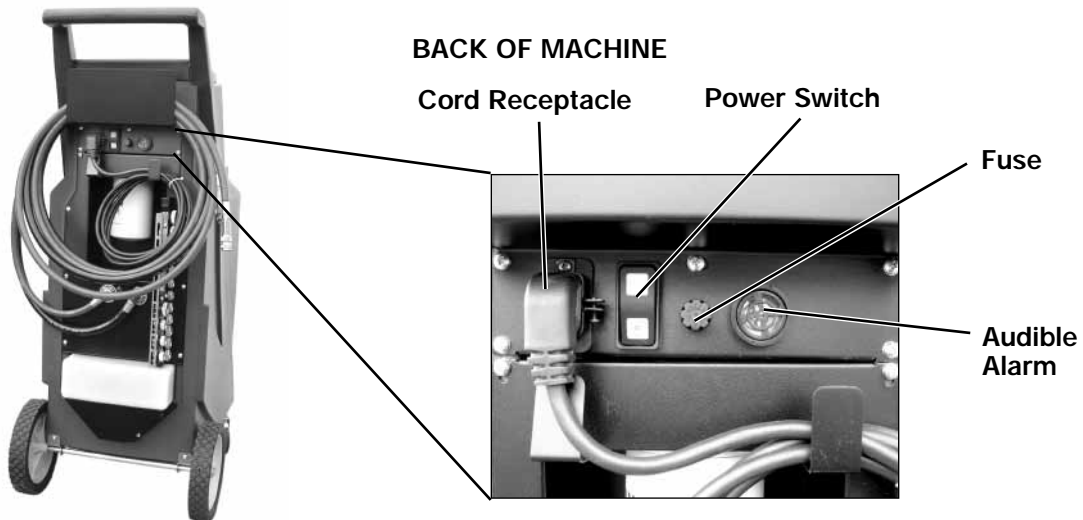
- Advantage Engineering Engine Flush Solution/Filter Kit for 16 services - 0506-01-04-1

Optional Accessories

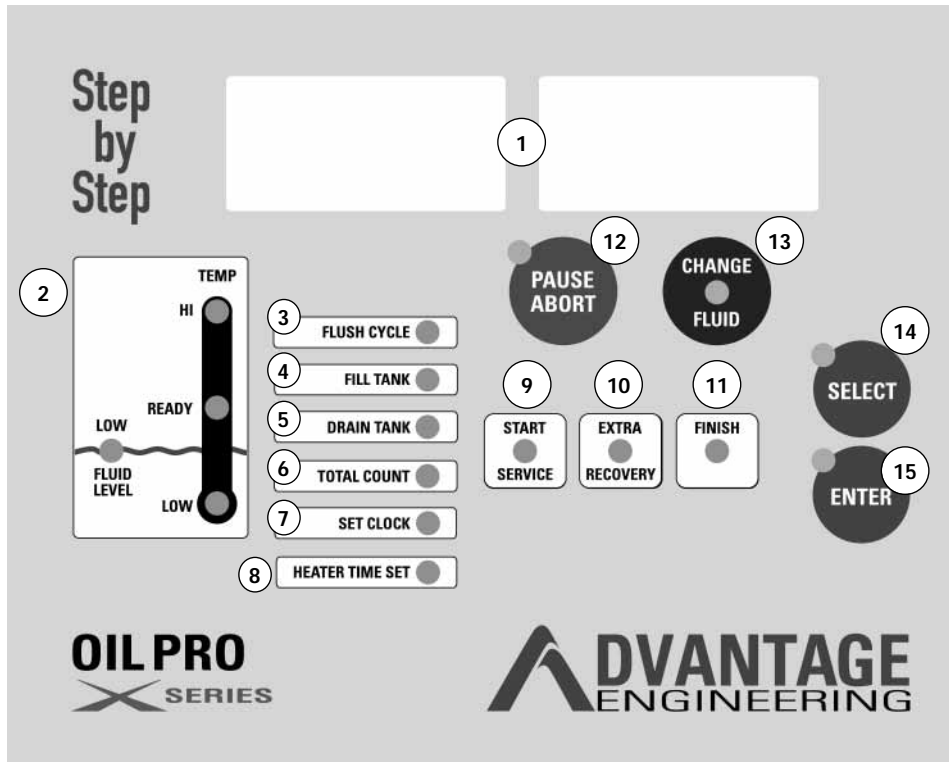
- Canister Adapters for most cartridge oil filtered engines (ask Distributor for details)

Specifications subject to change without notice.

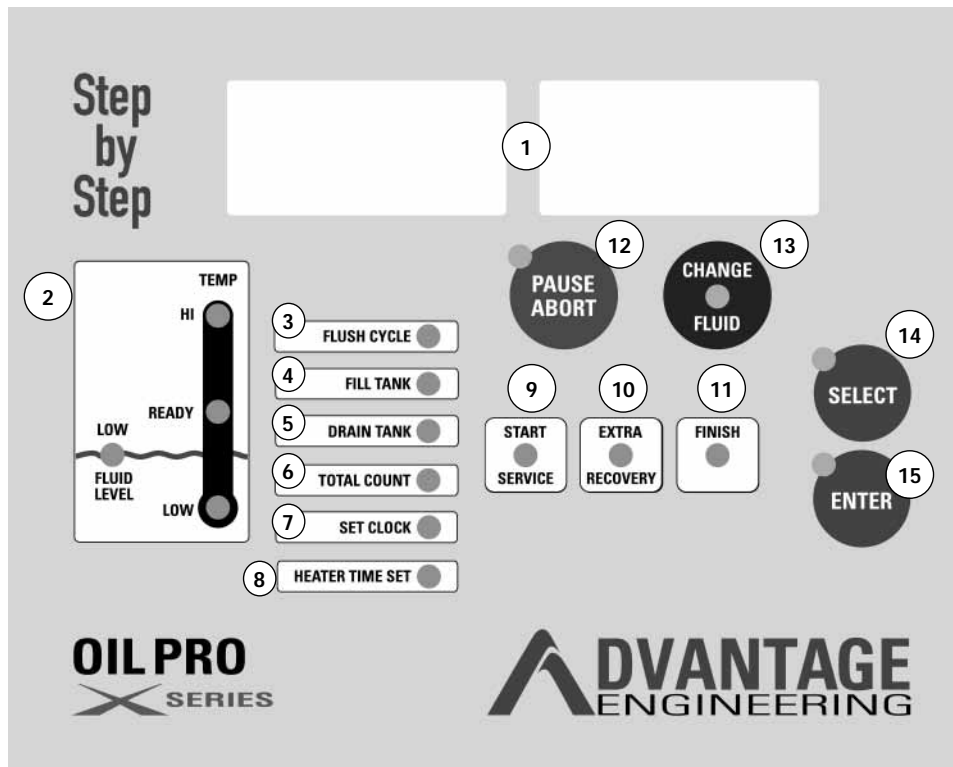
2.03 MACHINE OVERVIEW



2.04 CONTROL PANEL OVERVIEW



- 1 **DISPLAY** - Display (6 digits) LED
Indicates function, quantity, time, and filter change alarm dependent on mode
- 2 **TEMPERATURE AND FLUID LEVEL** - Diagram LEDs
Indicates tank temperature, low, ready, or high and low fluid level
- 3 **FLUSH CYCLE** - LED (green)
Indicates engine flush service mode
- 4 **FILL TANK** - LED (green)
Indicates fill tank (OIL PRO reservoir) mode
- 5 **DRAIN TANK** - LED (yellow)
Indicates drain tank (OIL PRO reservoir) mode
- 6 **TOTAL COUNT** - LED (green)
Indicates total count mode
- 7 **SET CLOCK** - LED (green)
Indicates mode to set clock
- 8 **HEATER TIME SET** - LED (yellow)
Indicates mode to set heater on/off interval



- 9 START SERVICE** – LED (green)
Indicates start engine flush service
- 10 EXTRA RECOVERY** - LED (green)
Indicates extra engine flush solution recovery
- 11 FINISH** - LED (red)
Indicates end of engine flush service
- 12 PAUSE/ABORT** – Button LED (red)
To pause, abort, or reset
- 13 CHANGE FLUID** - LED (red)
Lights to signal end of fluid useful life. Fluid needs to be exchanged to continue.
- 14 SELECT** – Button LED (green)
Depress to toggle between modes
- 15 ENTER** – Button LED (green)
Depress to enter mode indicated or confirm

IV. OPERATING PROCEDURES

3.01 TOOL USAGE

CAUTION

- Frequently inspect and clean any tools used, and lubricate all non-sealed ratchet mechanisms with light oil.
- The use of any other accessories not specified in this manual may create a hazard.
- Read, understand and follow Safety Instructions in the front pages of this manual and on product safety labels

3.02 ENGINE FLUSH SERVICE



DANGER



Vehicle gases contain Carbon Monoxide, which is a colorless & 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.*
- Read, understand and follow Safety Instructions in the front pages of this manual and on product safety labels.



WARNING



- Wear safety goggles and protective clothing, user and bystander.
- Do not operate the OIL PRO in the vicinity of open containers of flammable liquids such as gasoline.
- This machine is equipped to operate on 120 VAC power only.
- Keep yourself, clothing, adapters and service hoses clear of moving parts such as fan blades, belts and pulleys.
- Unless instructed otherwise, set parking brake and put gear selector in park.
- Do not leave a running vehicle unattended.
- Keep the service hoses away from hot or moving engine parts.
- Tighten all connections properly. Insufficient or excessive torque can result in fluid leakage.
- Read, understand and follow Safety Instructions in the front pages of this manual and on product safety labels.



WARNING



- Use this equipment only as described in this manual. Use only the manufacturer's recommended attachments.
- Care should be taken to arrange the power cord and service hoses so that they will not be tripped over or pulled.
- The OIL PRO system is fully automatic. Refer to your control panel at all times.
- Read, understand and follow Safety Instructions in the front pages of this manual and on product safety labels.

3.03 PREPARING MACHINE FOR OPERATION



WARNING



Do not connect any electrical supply to the machine before reading all of the instructions.

1. Unpack Standard Spin-on Adapter Set. Mount adapters on adapter rack on rear of machine per diagram.
2. The OIL PRO unit is shipped with the red upper oil filter adapter, P/N 6100-00-01-4, and oilport insert, P/N 6104-35-00-3, attached to the housing on the rear of the machine. Remove this red adapter and insert and position them properly in the adapter drawer located in front of the OIL PRO machine.

Inspect for:

- Damage, including small nicks

3.04 OPERATING PRODECURES – INITIAL FILL, FLUSH CYCLE, FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, HEATER TIME SET

INITIAL SOLUTION FILL

Have a new container of Advantage Engineering Engine Flush Solution and a Advantage Engineering Filter Kit ready. Remove the twist off cap on the solution container. Locate the black fill tube from the Advantage Engineering set of adapters and insert the black fill tube to the quick connector to the black line of the OIL PRO unit. Insert fill tube into the open solution container.

The OIL PRO unit is shipped with the red upper oil filter adapter, P/N 6100-00-01-4, and oil-port insert, P/N 6104-35-00-3, attached to the housing on the rear of the machine. Remove this red adapter and insert and position them properly in the adapter drawer located in front of the OIL PRO machine. Open the Advantage Engineering Filter Kit, identify the spin-on filter, lubricate the O-ring, and properly install to the oil filter housing located on front of the OIL PRO machine. Install one of the four one (1) micron filter cartridges in the front canister housing on the front of the machine.

Power up. Connect power cord to 110/120VAC outlet.

The OIL PRO will self test. The buzzer will sound, all LEDs and display segments will light briefly, and software version will be displayed.

Display will read "CNT 00." The LOW TEMP LED will be lit. The SELECT key and FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET LEDS will light and flash.

Depress the SELECT key until the LED for the proper function is lit. (Note: The lit LED will move from option to option i.e. FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET, etc. each time it is depressed). When the LED for the FILL TANK mode is lit and flashing, pause for one second.

The ENTER key LED will then light and flash. Depress ENTER to confirm.

The LOW TEMP, LOW FLUID LEVEL, and FILL TANK LEDs will be lit. The START SERVICE and ENTER LEDs will flash.

Depress ENTER to confirm.

This will start the initial fill tank cycle.

The recovery pump of the OIL PRO machine will sound. The display will read "FIL 00."

When the solution reaches the top fluid level sensor in the OIL PRO machine the display will read "FIL 01." It will read "FIL 02 ... FIL 03 until FIL 30" is displayed, thirty seconds after the top level sensor is reaches. The audible alarm will sound five times indicating the fill cycle is complete and the display will read "FILFIN."

The FINISH and ENTER LEDs will flash. Depress ENTER.

The display will read "CNT 00." The LOW TEMP LED will be lit. The SELECT key and FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET LEDS will light and flash.

This completes the initial fill cycle.

NOTE: The OIL PRO machine will not allow an engine flush service until the solution temperature reaches 105°F (approx.). When 105°F is reached, the LOW TEMP LED is extinguished and the FLUSH CYCLE LED lights.

PERFORMING AN ENGINE FLUSH

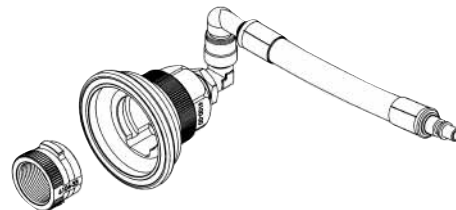
NOTE: Confirm vehicle is at operating temperature before initiating service!

Drain oil and remove oil filter from the engine being serviced.

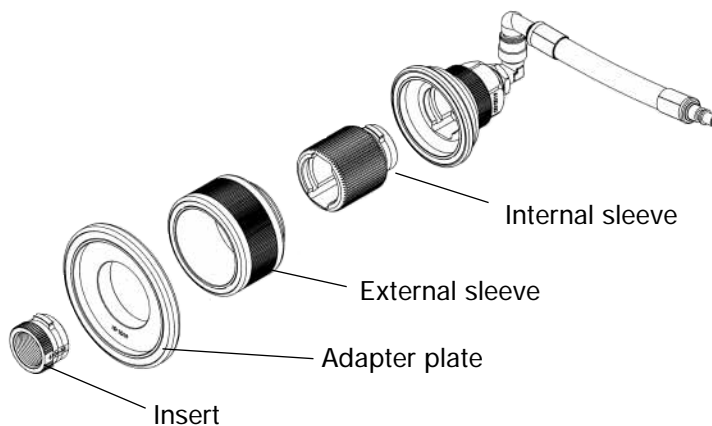
SPIN-ON FILTER EQUIPPED VEHICLES

On engines equipped with spin-on filters it will be necessary to use the oil filter base adapter when connecting to the oil filter port of the engine. Depending on the engine's oil filter housing, some combination of one or more of the other upper adapters will be necessary to produce an effective attachment to the engine. In 90% of the cases when a spin-on filter is used, the outer housing lip of the oil filter housing and the center post are level with each other.

Attach oil filter port adapter to oil port by selecting the correct insert and lock it into the orifice on the adapter base. This assembly is directly attached to the engine's oil filter housing (hand tighten). Use larger diameter adapter plate if necessary.

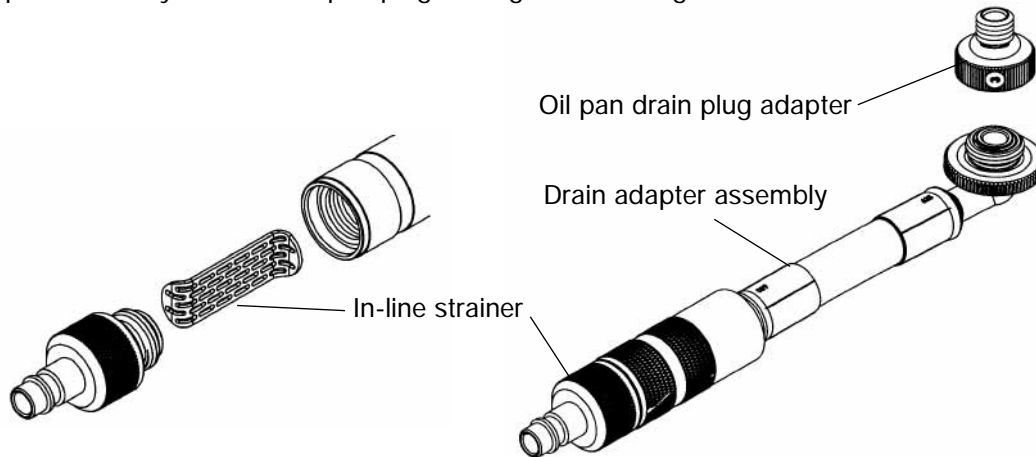


If the outer lip of the engines oil filter housing is larger in diameter than the oil filter base plate, it will be necessary to add an adapter plate. (Illustrated below.) If there is an extended center-post in the engine's oil filter housing, it will be necessary to add the extension sleeve to the base plate and one of the internal extension sleeves.



DRAIN PAN (LOWER) ADAPTERS

Select oil pan adapter. Take the appropriate sized oil pan drain plug adapter (silver colored) and screw it into the oil pan drain opening. Hand tight is sufficient. Attach the 90° drain adapter assembly to the drain pan plug turning until hand tight.

**IMPORTANT**

Adapters and mating engine oil filter port surface must be clean.
Engine damage may occur by failing to clean these surfaces.

NOTE: Use a solvent when cleaning adapters.

6. Lock wheel brakes, located on the front of the machine.

NOTE: Check to ensure brakes are secure.

7. Connect the red hose to the oil filter adapter and the black hose to the drain adapter assembly.

NOTE: Listen to audible click to ensure proper connection.

IMPORTANT

To avoid engine overfill make sure the hoses are properly aligned and connected to ensure there are no twists or kinks of adapter hoses and red and/or black external hoses.

Power up. Connect power cord to 110/120VAC outlet.

The OIL PRO will self test. The buzzer will sound, all LEDs and display segments will light briefly, and software version will be displayed.

Display will read "Cntxxx" (value xxx being 000 to 015). The LOW TEMP LED may or may not be lit dependent on solution temperature. The SELECT key and FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET LEDs will light and flash.

Depress the SELECT key until the LED for the proper function is lit. (Note: The lit LED will move from option to option i.e. FLUSH CYCLE, FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET, etc. each time it is depressed). When the LED for the FLUSH CYCLE mode is lit, pause for one second.

The ENTER key LED will then light and flash. Depress ENTER to confirm.

The OIL PRO machine performs the static flush service in four (4) stages. The stage and the stage of the service in seconds is shown on the display.

When the static flush service is complete the audible alarm will sound five times.

LOW or READY temp LEDs and FLUSH CYCLE and START SERVICE LEDs will be lit. The EXTRA RECOVERY, FINISH, and SELECT LEDs will flash.

A high level of flush solution visible in the front canister housing may indicate that not all of the engine flush solution has been recovered from the crankcase to the OIL PRO machine. Proceed to the next step if EXTRA RECOVERY is desired.

Extra recovery

Depress SELECT once to select the EXTRA RECOVERY function. Pause for one second.

The ENTER key LED will then light and flash. Depress ENTER to confirm.

Display will show "rCE 30" counting down to "rCE 00" indicating that the EXTRA RECOVERY is complete.

LOW or READY temp LEDs and FLUSH CYCLE and START SERVICE LEDs will be lit. The EXTRA RECOVERY, FINISH, and SELECT LEDs will flash.

The EXTRA RECOVERY mode is repeatable.

Finish

After most static flush services there will be little solution visible in the front canister housing.

Depress SELECT to move between EXTRA RECOVERY and FINISH. When the FINISH LED is, pause for one second.

The ENTER key LED will then light and flash. Depress ENTER to confirm.

The display will read "Cnt 01" (... or one value higher than the initial "Cnt xx" reading evidencing the additional service performed on this container of solution).

CANISTER FILTER CHANGE

After every fourth flush (Cnt 04, Cnt 08, and Cnt 12) the reading will flash and read **"FILtEr"** and the audible alarm will sound continuously.

Change one (1) micron filter cartridge in the front canister. Depress ENTER key to silence the alarm and flashing display.

DRAIN TANK (PART 1 OF SOLUTION CHANGE)

At the end of sixteen (16) static flush services the solution much be changed. The CHANGE SOLUTION LED will flash and the audible alarm will sound. The DRAIN TANK service is the only service that is active (FLUSH CYCLE and FILL TANK modes are inoperable).

Depress ENTER key to silence the alarm.

Obtain the oil filter adapter either on the oil filter housing of the engine being serviced or on the adapter rack. Detach the clear hose assembly from the oil filter adapter by holding the knurled metal ring/collar of the coupler and hose and pushing toward the adapter. Holding the knurled metal ring/collar immediately pull the hose from the coupler.

Insert the clear hose assembly to the red hose of the OIL PRO machine. Make sure the hose is properly connected and that you hear a positive "clicking" sound.

Place the hose assembly in a suitable container for waste oil.

Depress the SELECT key until the LED for the DRAIN TANK mode is lit, pause for one second.

The ENTER key LED will then light and flash. Depress ENTER to confirm.

This will start the drain tank cycle.

The pressure pump of the OIL PRO machine will sound. The display will read

"Drn 00."

When the solution reaches the middle fluid level sensor in the OIL PRO machine the LOW FLUID LEVEL will light. When the bottom fluid level sensor is reached the display will read **"Drn 01"** counting to **"Drn 30."**

The DRAIN TANK function is now complete. The display will read **"DrnFln."**

The FINISH and ENTER LEDs will flash. Depress ENTER.

FILL TANK (PART 2 OF SOLUTION CHANGE)

Have a new container of Advantage Engineering Engine Flush Solution and a Advantage Engineering Filter Kit ready. Remove the twist off cap on the solution container. Locate the black fill tube from the Advantage Engineering set of adapters and insert the black fill tube to the quick connector to the black line of the OIL PRO. Insert fill tube into the open solution container.

The LOW TEMP, LOW FLUID LEVEL, and FILL TANK LEDs will be lit.

The SELECT key and FILL TANK, DRAIN TOTAL COUNT, SET CLOCK, and HEATER TIME

SET LEDES will light and flash.

Depress the SELECT key until the LED for the proper function is lit. (Note: The lit LED will move from option to option each time it is depressed). When the LED for the FILL TANK mode is lit, pause for one second.

The ENTER key LED will then light and flash. Depress ENTER to confirm.

This will start the fill tank cycle.

The recovery pump of the OIL PRO machine will sound. The display will read **"FIL 00."**

When the solution reaches the top fluid level sensor in the OIL PRO machine the display will read **"FIL 01."** It will read **"FIL 02 ... FIL 03"** until **"FIL 30"** is displayed, thirty seconds after the top level sensor is reached. The audible alarm will sound five times indicating the fill cycle is complete and the display will read **"FILFin."**

The FINISH and ENTER LEDs will flash. Depress ENTER.

The display will read **"Cnt 00."** The LOW TEMP LED will be lit. The SELECT key and FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET LEDES will light and flash.

This completes the fill cycle.

Note: The OIL PRO machine will not allow an engine flush service until the solution temperature reaches 105°F (approx.). When 105°F is reached, the LOW TEMP LED is extinguished and the FLUSH CYCLE LED lights.

SETTING THE CLOCK

NOTE: Clock functions are based on military time (12 indicating noon, 24 indicating midnight).
Date functions are year, month, day.

Connect power cord to 110/120VAC outlet.

The OIL PRO will self test. The buzzer will sound, all LEDs and display segments will light briefly, and software version will be displayed.

Display will read **"Cnt xx"** (value xx being **00** to **15**). The LOW TEMP LED may or may not be lit dependent on solution temperature. The SELECT key and FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET LEDES will light and flash.

Depress the SELECT key until the LED for the proper function is lit. (Note: The lit LED will move from option to option i.e. FLUSH CYCLE, FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET, etc. each time it is depressed).

When the LED for SET CLOCK mode is lit the display fields will "flash" the following YYnnDD, (YEAR, MONTH, DAY), the set values, HHnnSS (HOURS, MINUTES, SECONDS), and the set values. **As an example the display may flash YYnnDD, 040206, indicating 2004, February 6th,**

and HHnnSS, 143622 indicating 2:36:22PM.

Depress ENTER.

The first two digits of the display representing the YEAR will flash "00." Each time the SELECT key is depressed the value will increase by "1." When the correct year is displayed, press ENTER. The maximum value that can be inputted for these two digits is 99.

The second two digits of the display representing the MONTH will flash "01.". Each time the SELECT key is depressed the value will increase by "1." When the correct month is displayed, press ENTER. The maximum value that can be inputted for these two digits is 12.

The last two digits of the display representing the DAY will flash "01.". Each time the SELECT key is depressed the value will increase by "1." When the correct month is displayed, press ENTER. The maximum value that can be inputted for these two digits is 31.

The first two digits of the display representing the HOUR will flash "00.". Each time the SELECT key is depressed the value will increase by "1." When the correct month is displayed, press ENTER. The maximum value that can be inputted for these two digits is 24.

The second first two digits of the display representing the MINUTES will flash "00.". Each time the SELECT key is depressed the value will increase by "1." When the correct month is displayed, press ENTER. The maximum value that can be inputted for these two digits is 59.

The last two digits of the display representing the SECONDS will flash "00.". Each time the SELECT key is depressed the value will increase by "1." When the correct month is displayed, press ENTER. The maximum value that can be inputted for these two digits is 59.

Display returns to "Cnt xx" (value xx being 00 to 15).

HEATER TIME SET

NOTE: Clock functions are based on military time (12 indicating noon, 24 indicating midnight).
Date functions are year, month, day.

Connect power cord to 110/120VAC outlet.

The OIL PRO will self test. The buzzer will sound, all LEDs and display segments will light briefly, and software version will be displayed.

Display will read "Cnt xx" (value xx being 00 to 15). The LOW TEMP LED may or may not be lit dependent on solution temperature. The SELECT key and FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET LEDS will light and flash.

Depress the SELECT key until the LED for the proper function is lit. (Note: The lit LED will move from option to option i.e. FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET, etc. each time it is depressed). When the LED for the HEATER TIME SET mode is lit and flashing, pause for one second.

The ENTER key LED will then light and flash. Depress ENTER to confirm.

Display will read "1-5HOn." "1-5" indicates days Monday to Friday. The values for the flashing last two digits are for the hour desired for heater to turn on. **As an example, if you desire to have the heaters on at 7:00A, the value should be "07."**

Each time the SELECT key is depressed the value will increase by "1." When the correct hour is displayed, press ENTER. The maximum value that can be inputted for these two digits is 24.

Display will read "1-5HOF." "1-5" indicates days Monday to Friday. The values for the flashing last two digits are for the hour desired for heater to turn off. ***As an example, if you desire to have the heaters off at 6:00P, the value should be "18."***

Each time the SELECT key is depressed the value will increase by "1." When the correct hour is displayed, press ENTER. The maximum value that can be inputted for these two digits is 24.

Display will read "SatHOn." "Sat" indicates days Saturday and Sunday. The values for the flashing last two digits are for the hour desired for heater to turn on. ***As an example, if you desire to have the heaters on at 7:00A, the value should be "07."***

Each time the SELECT key is depressed the value will increase by "1." When the correct hour is displayed, press ENTER. The maximum value that can be inputted for these two digits is 24.

Display will read "SatHOF." "Sat" indicates days Saturday and Sunday. The values for the flashing last two digits are for the hour desired for heater to turn off. ***As an example, if you desire to have the heaters off at 6:00P, the value should be "18."***

Each time the SELECT key is depressed the value will increase by "1." When the correct hour is displayed, press ENTER. The maximum value that can be inputted for these two digits is 24.

Display returns to "Cnt xx" (value xx being 00 to 15).

TOTAL COUNT

Connect power cord to 110/120VAC outlet.

The OIL PRO will self test. The buzzer will sound, all LEDs and display segments will light briefly, and software version will be displayed.

Display will read "Cnt xx" (value xx being 00 to 15). The LOW TEMP LED may or may not be lit dependent on solution temperature. The SELECT key and FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET LEDs will light and flash.

Depress the SELECT key until the LED for the proper function is lit. (Note: The lit LED will move from option to option i.e. FILL TANK, DRAIN TANK, TOTAL COUNT, SET CLOCK, and HEATER TIME SET, etc. each time it is depressed). When the LED for the TOTAL COUNT mode is lit and flashing, pause for one second.

The ENTER key LED will then light and flash. Depress ENTER to confirm.

The display will read "xxxxxx" with the values for "xxxxxx" being the total flushes performed on the OIL PRO machine.

V. TROUBLESHOOTING & ADDITIONAL HELP

WARNING



- Vent vehicle's exhaust away from work area.
- Do not breathe exhaust.
- Read, understand and follow Safety Instructions in the front pages of this manual and on product safety labels.

WARNING



- Wear safety goggles and protective clothing, user and bystander.
- This machine is equipped to operate on 120 VAC power only.
- Keep yourself, clothing, adapters and service hoses clear of hot or moving engine parts such as fan blades, belts and pulleys.
- Block drive wheels before starting vehicle's engine to begin an exchange.
- Unless instructed otherwise, set parking brake and put gear selector in park.
- Do not leave a running vehicle unattended.
- Tighten all connections properly. Insufficient or excessive torque can result in fluid leakage.
- Read, understand and follow Safety Instructions in the front pages of this manual and on product safety labels.

CAUTION



- Frequently inspect and clean any tools used, and lubricate all non-sealed ratchet mechanisms with light oil.
- The use of any other accessories not specified in this manual may create a hazard.
- Read, understand and follow Safety Instructions in the front pages of this manual and on product safety labels.

4.01 AVOIDING ENGINE OVERFILLS

The OIL PRO system has been designed to be very operator friendly and fail-safe. The machine requires a reasonable level of care in handling and set-up, in order to eliminate the possibility of an engine overflow.

The two most likely reasons for an engine overflow are debris in the adapters and kinked hoses. Kinked hoses can be completely eliminated by positioning the machine and hoses in a manner such that the hose is not folding back on itself. Problems with debris can be reduced through care in handling and periodic inspection during the flushing process to ensure that canisters are filling with solution during the flush.

Listed below are typical problems, causes of engine overfills, and what can be done to "Cure" them.

PROBLEM: Clogged or blocked drain plug adapter or hose quick release.

CAUSE: Debris from engine or shop environment.

CURE:

- 1) Check adapter for debris before installation.
- 2) During a flush, check canisters and adapter hoses to ensure proper flow. Stop flush and check for debris if flow appears low.
- 3) Check in-line strainer (See page 18, Drain Pan (Lower) Adapters)

NOTE: Older or poorly maintained cars may have large amounts of debris, so use more care throughout the process.

PROBLEM: Blockage at hose quick release.

CAUSE: Improper connection caused by debris or failure to completely seat the fittings.

CURE: Check for debris before installing. Ensure that a positive lock (Clicking sound) is achieved. Check "Rough" collar to ensure that it is completely seated against adapter nut (No visual gaps).

PROBLEM: Drain plug adapter hose kinked.

CAUSE: Installation and position of hoses and the machine.

CURE: Keep hose and machine aligned to avoid folding hoses. In tough situations a simple hook can be used to support the hose and ensure proper alignment.

PROBLEM: Overflow will occur if operator hits the drain key after the 16th flush.

CAUSE: Operator pushing incorrect keys and neglecting alarms

CURE:

- 1) Take your time and read the display.
- 2) Drain old solution by following instructions on the machine.

PROBLEM: Stiff or kinked hoses.

CAUSE: Extremely tough shop environment with high turnover of personnel or personnel who handle equipment roughly.

CURE: Repair or replace damaged equipment.

4.02 TROUBLESHOOTING GUIDE

Problem: No display

Cause: No power.

Solution : Check the wall receptacle for the proper voltage, 120 VAC 13.0 AMPS.

Cause: Machine not plugged in.

Solution : Plug in.

Cause: On/Off switch is not in the "On" position.

Solution : Turn the On/Off switch, located on the back of the machine, to the "On" position.

Cause: Fuse blown.

Solution: Check the 15 AMP Fuse, replace if blown. The fuse is located on the back of the machine.

Cause: Loose wires / bad connection

Solution: Check for security on all wires, if wire(s) are loose, UNPLUG MACHINE, tighten wire(s), and recheck.

Problem: Tank temperature low

Cause: Low voltage from wall outlet

Solution: Check voltage in shop. If voltage is lower than 92% of the normal required voltage, the unit will not heat properly.

Cause: Amperage on extension cord not rated at 15 AMPS

Solution: Remove extension cord and replace with a cord that is 15 AMP rated, or plug directly into the wall power outlet.

Cause: Machine is low in solution

Solution 1: Press the **[Fill]** key. Wait 20-60 minutes for the machine to heat the solution.

Solution 2: Repeat Solution 1. Add one (1) six (6) U.S. gallon container of solution to the internal tank. Wait 20-60 minutes for the machine to heat solution.

Cause: Bad mechanical relay.

Solution: Check for 24 VDC on purple and colored wires, located on mechanical relay(s). If 24 VDC is present, check for closed contact position. If contact is not closed, replace relay(s).

Problem: No fluid circulation

Cause: 3 micron filter loose or not installed.

Solution: Make sure 3 Micron Filter is installed and hand tightened.

Cause: Quick release fitting.

Solution: Check for proper connection between adapters and hose connection.

Cause: Pump is not working.

Solution: Call your local distributor for assistance.

Problem: Filter canister empty.

Cause: Bad connection at the return quick connect;

Solution: Check the quick release connection on the oil pan adapter;

Problem: Fluid does not return to the unit

Cause: Clogged return quick connect;

Solution: Clean the quick connect;

Cause: Kinked recovery hose (Black);

Solution: Check (black) hose for kinks;

Cause: In-line strainer clogged.

Solution: Clean in-line strainer. (See page 21, Drain Pan (Lower) Adapters)

Problem: Flush Cycle not working I.

Cause: Low tank temperature.

Solution: Wait for the tank temperature to be "Ready".

Problem: Flush Cycle not working II.

Cause: Program lockout.

Solution: Reset program. Press **[Main Menu]**. Use **[Cursor]** key to scroll down to "Program Reset" then press the **[Enter]** key.

Cause: Last cycle was aborted.

Solution: Reset program. Press **[Fill]** key, and let cycle complete.

Problem: [Drain] key not working.

Cause: Pack services not at 16 count.

Solution: Wait until 16 count services are reached.

Problem: Ultra Fine Filter Canister leaking I

Cause: Canister not tightly closed

Solution: Press the **[Pause]** key to pause service. Using canister wrench, tighten canister, then press **[Pause]** key to resume service.

Problem: Ultra Fine Filter Canister leaking II

Cause: Dirty O-ring groove or dirty O-ring

Solution: Press the **[Pause]** key to pause service. Clean O-ring groove and O-ring, then press the **[Pause]** key to resume service.

Cause: No O-ring or damaged O-ring

Solution: Press the **[Pause]** key to pause service. Replace the O-ring, then press the **[Pause]** key to resume service.

Problem: No solution flowing through the canister after the [Flush] key was pressed.

Cause: Hoses are not connected properly to adapters.

Solution: Press the **[Pause]** key to pause service. Disconnect and reconnect hose fitting adapters. Press **[Pause]** key to resume service.

Cause: Drain plug adapter or inline strainer clogged with debris.

Solution: Press **[Pause]** key to pause service, Press **[Abort]** key, Press **[Fill]** key, disconnect adapter, clean out debris, press **[Flush]** key to flush.

Problem: No recovery, [Fill] key must be pressed several times.

Cause: Drain adapter is clogged with sludge or debris.

Solution: Clean and inspect adapter.

VI. APPENDIX A - ADAPTERS

5.01 Standard Spin-on Adapter Kit - 0120-10-01-0



1.	6100-00-01-4	ADAP, OIL FILTER STANDARD ASSY (RED)
2.	6100-01-01-4	ADAP, OIL FILTER MINICAR ASSY (BLUE)
3.	6101-00-01-4	ADAP, PLATE 3.625" OD ASSY (CHEVY) (RED)
4.	6101-01-01-4	ADAP, PLATE 4.25" OD ASSY (FORD, MBZ) (RED)
5.	6102-00-01-4	ADAP, EXT. SLEEVE OUTER ASSY (RED)
6.	6103-00-00-4	ADAP, EXT. SLEEVE INNER 1.72" LONG (CLEAR)
7.	6104-09-00-3	ADAP, INSERT M22-1.5 (OILPORT)
	6104-11-00-3	ADAP, INSERT M20-1.5 (OILPORT)
	6104-14-00-3	ADAP, INSERT M18-1.5 (OILPORT)
	6104-30-00-3	ADAP, INSERT 1 1/2"-16 X 3" LONG (OILPORT)
	6104-35-00-3	ADAP, INSERT 1"-12 (OILPORT)
	6104-37-00-3	ADAP, INSERT 1"-16 (OILPORT)
	6104-40-00-3	ADAP, INSERT 13/16"-16 (OILPORT)
	6104-41-00-3	ADAP, INSERT 13/16"-16 EXTENDED (OILPORT) (GM 5,5.7 LITER)
	6104-44-00-3	ADAP, INSERT 3/4"-16 (OILPORT)
8.	6110-00-02-3	ADAP, DRAIN SWIVEL X 90 X S/25 PLUG ASSY W/IN-LINE STRAINER
9.	6112-00-01-3	ADAP, 1/2" OD X 90 X HOSE X S/22 PLUG ASSY (OILPORT)

10.	6115-00-00-4	ADAP, DRAIN METRIC RAIL
	6115-01-01-3	ADAP, DRAIN INSERT #1, M12-1.25 ASSY
	6115-03-01-3	ADAP, DRAIN INSERT #2, M12-1.5 ASSY
	6115-05-01-3	ADAP, DRAIN INSERT #3, M12-1.75 ASSY
	6115-07-01-3	ADAP, DRAIN INSERT #4, M14-1.25 ASSY
	6115-09-01-3	ADAP, DRAIN INSERT #5, M14-1.5 ASSY
	6115-11-01-3	ADAP, DRAIN INSERT #6, M16-1.25 ASSY
	6115-13-01-3	ADAP, DRAIN INSERT #7, M16-1.5 ASSY
	6115-15-01-3	ADAP, DRAIN INSERT #8, M18-1.5 ASSY
	6115-17-01-3	ADAP, DRAIN INSERT #9, M20-1.5 ASSY
	6115-19-01-3	ADAP, DRAIN INSERT #10, M20-2.5 ASSY
	6115-23-01-3	ADAP, DRAIN INSERT #11, M24-1.5 ASSY
	6115-25-01-3	ADAP, DRAIN INSERT #12, M26-1.5 ASSY
	6115-31-11-0	ADAP, DRAIN BLOCK/INSERT #13, 1/2"-20 ASSY
	6115-35-11-0	ADAP, DRAIN BLOCK/INSERT #15, 5/8"-18 ASSY
	6115-37-11-0	ADAP, DRAIN BLOCK/INSERT #16, 3/4"-16 ASSY
	6115-39-11-0	ADAP, DRAIN BLOCK/INSERT #17, 7/8"-18 ASSY
	6116-00-01-3	ADAP, DRAIN BLOCKHOLDER ASSY
11.	6810-02-01-0	O-RING, KIT FOR 0120-11-01-0

5.02 Canister Adapter kit - 0120-02-01-0



6101-02-01-4	ADAP, PLATE 4"OD ASSY(BMW)(BLACK)
6101-03-00-4	ADAP, PLATE 4"OD (BENTLEY & ROLLS ROYCE)(CLEAR)
6102-01-01-4	ADAP, EXT. SLEEVE OUTER M100-3 ASSY(FORD DIV V8 6.0 LITER DIESEL)
6103-01-00-4	ADAP, EXTENTION TUBE 1 3/4" X 4 3/4" (CLEAR)
6103-02-00-4	ADAP, EXTENTION TUBE 1 3/4" X 2 5/8" (CLEAR)CADILLAC 3.6 LITER
6103-03-00-4	ADAP, EXTENTION TUBE 1 3/4" X 2 1/4" (CLEAR)MINI-COOPER
6104-18-00-3	ADAP, INSERT M10-1.5(OILPORT)
6120-01-02-4	ADAP, CAP & EXT. COLLAR ASSY(BLUE)(GM 2.5L OILPAN FILTER)
6120-03-01-4	ADAP, BASE CAP ASSY(BLUE)(OLDS 3.5L-V6)(OILPAN FILTER)
6120-05-01-4	ADAP, BASE CAP ASSY(CADILLAC V6 3.6 LITER)BLUE
6120-06-01-4	ADAP, BASE CAP ASSY(CADILLAC V6 3.2 LITER)BLUE
6120-07-01-4	ADAP, BASE CAP ASSY (SATURN LS 4 CYL.)
6120-10-01-4	ADAP, BASE CAP ASSY(GOLD)(MBZ3.2L/BMW318/OPEL OMEGA/PORSCHE 996/BOXSTER)
6120-12-01-4	ADAP, BASE CAP ASSY (VOLVO 40,70,80 SERIES 2000-)(CLR)
6120-13-01-4	ADAP, BASE CAP ASSY(VOLKSWAGEN VR6-3.2 LITER)CLEAR

6120-14-01-4	ADAP, BASE CAP ASSY(MINI COOPER 2002-)BLACK
6120-15-01-4	ADAP, BASE CAP ASSY(MAZDA 3 AND 6 SERIES 2.3 LITER)GREEN
6120-16-01-4	ADAP, BASE CAP ASSY(BMW V8/V12, VW VR6, MBZ 350 DIESEL)BLACK
6120-17-01-4	ADAP, BASE CAP ASSY(LEXUS 300 GS 2006-)RED
6120-20-01-4	ADAP, BASE CAP/PLATE ASSY(GOLD)(MBZ 300 DIESEL)
6120-24-01-4	ADAP, BASE CAP/PLATE ASSY(CLEAR)(ACURA 2.5L)
6120-30-00-4	ADAP, STEMBASE 1 3/4"-12 X M10-1.5(CLEAR)
6120-33-00-3	ADAP, STEM M10-1.5 X M35(GOLD)(USE W/6104-18-00-3)
6120-35-00-3	ADAP, STEM/BASE BAYONET X M16-1.5(MITSUBISHI DIESEL)(CLEAR) EXPORT ONLY
6120-36-00-3	ADAP, STEM 1/2"20 X 1 3/4"LONG(BENTLEY & R&R)(CLEAR)
6120-37-00-3	ADAP, STEM M10-1.5 X M63(BLACK)(USE W/6104-18-00-3)
6120-38-00-3	ADAP, STEM 3/8"-16 X M63(CLEAR)(USE W/6104-18-00-3) EXPORT ONLY
6120-39-00-3	ADAP, STEM M10-1.5 X M98(GOLD)(USE W/6104-18-00-3)
6120-40-01-4	ADAP, STEM ASSY (SATURN LS 4 CYL.) (BLUE)
6120-42-00-3	ADAP, STEM M10-1.5 X M166(BLACK)(USE W/ 6104-18-00-3)
6120-45-00-3	ADAP, STEM M10-1.5 X M187(GOLD)(USE W/6104-18-00-3)
6120-48-00-3	ADAP, STEM M8-1.5 X M210(GOLD)(USE W/6104-18-00-3)
6120-55-01-4	ADAP, STEM 1/2"OD X 5.500" ASSY(BLACK)
6120-57-01-3	ADAP, STEM M10-1.5 X 5.700" ASSY(BLACK)
6120-60-01-4	ADAP, STEM 5/8"OD X 6.425" ASSY(BLACK)
6120-61-01-3	ADAP, STEM M10-1.5 X 6.700" ASSY(BLACK)
6120-63-01-4	ADAP, STEM 5/8"OD X 7.200" ASSY(GOLD)
6120-64-01-4	ADAP, STEM 5/8"OD X 7.650" ASSY(CLEAR)VW TDI
6120-65-01-4	ADAP, STEM M22 X 7.800" ASSY (GOLD)
6120-67-01-3	ADAP, STEM M10-1.5 X 8.375" ASSY(BLACK)
6120-69-01-4	ADAP, STEM M22 X 9.250" ASSY (GOLD)
6120-70-01-4	ADAP, STEM M11 X 9.005"LONG ASSY(MBZ DIESEL)(GOLD)
6120-74-01-4	ADAP, STEM M22 OD X 11 3/4" ASSY(GOLD)
6120-80-01-4	ADAP, STEM ASSY(CLEAR)(VOLVO 40,70,80 SERIES 2000 -)(CLR)
6120-83-01-4	ADAP, STEM 1 3/4" X 3.500" ASSY(BLUE)
6120-91-00-4	ADAP, COLLAR 2"OD(GOLD)
6120-93-00-4	ADAP, COLLAR 2 1/2"OD(BLACK)(BMW V8/V12 92"-)
6120-94-00-4	ADAP, COLLAR 2"OD X 2.700" (GOLD)

5.03 Canister Adapter Application

APPLICATION #
See Illustration
Section 5.04

YEAR	MODEL	CYL	LITERS	OIL FILTER PORT	
ACURA					
86	LEGEND	V6	2.5	6120-24	#1
BENTLEY					
62-90	ALL	V8		6100-00 / 6104-18 / 6101-03 / 6120-36	#25
98		V12	5.4	6120-16 / 6103-01 / 6120-93	#7
BMW					
83-89	318E,I	L4	1.8	6100-00 / 6104-44	#2
89-95	318	L4	1.8	6100-00 / 6104-18 / 6101-01 / 6120-57	#3
95-99	318I, Z3-1.9	L4	1.9	6120-10 / 6120-30 / 6120-60	#4
77-83	320I,IS	L4	2.0	6100-00 / 6104-44	#2
88-92	M3	L4	2.3	6100-00 / 6104-44	#2
84-92	325E,ES,I,IC	L6	2.7	6100-00 / 6104-44	#2
93-95	325	L6	2.5	6100-00 / 6104-18 / 6101-01 / 6120-61	#28
96-	328, Z3-2.8	L6	2.8	6120-16 / 6120-30 / 6120-55	#5
82-88	528E	L6	2.7	6100-00 / 6104-44	#2
85-92	535E, I	L6	3.5	6100-00 / 6104-18 / 6102-00 / 6101-02	#8
93-95	525	L6	2.5	6100-00 / 6104-18 / 6101-01 / 6120-61	#28
	525TDI(DIESEL)	L6	2.5	6120-20 / 6120-67	#6
94-	540I	V8	4.0-4.4	6120-16 / 6103-01 / 6120-93	#7
78-88	630CSI, 633CSI, 635CSI	L6	3.0-3.5	6100-00 / 6104-18 / 6102-00 / 6101-02	#8
85-90	M6	L6	3.5	6100-00 / 6104-18 / 6102-00 / 6101-02	#8
78-88	733I, 735I	L6	3.0-3.5	6100-00 / 6104-18 / 6102-00 / 6101-02	#8
88-92	735I, IL	L6	3.5	6100-00 / 6104-18 / 6101-01 / 6120-42	#9
93-	740I, 840I	V8	4.0-4.4	6120-16 / 6103-01 / 6120-93	#7
FORD					
	POWERSTROKE DIESEL	V8	6.0	6120-16	#27
05-	ESCAPE HYBRID	V4	2.3	6120-15	
05-	E450 (DIV V8)	V8	6.0	6120-16 / 6102-01	
GENERAL MOTORS					
88-95	WITH OIL FILTER IN OIL PAN	L4	2.5	6120-01	#21
99-	CADILLAC CATERA, OPEL OMEGA	V6	3	6120-10 / 6120-83	#23
	CADILLAC	V6	3.2	6120-06	#34
	CADILLAC	V6	3.6	6120-05 / 6103-02 / 6120-91	#35
2000-	SATURN LS	L4	2.2	6120-07 / 6120-30 / 6120-40	#22
2000-	SATURN LS	V6	3	6120-10 / 6120-83	#23
99-	OLDSMOBILE INTRIGUE	V6	3.5-24V	6120-03	#24
2001	OLDSMOBILE AURORA	V6	3.5-24V	6120-03	#24

YEAR	MODEL	CYL	LITERS	OIL FILTER PORT	APPLICATION # See Illustration Section 5.04
LEXUS					
2006	300 GS	V6	3	6120-17	#40
MAZDA					
	3 AND 6 SERIES	L4	2.3	6120-15	#39
MERCEDES BENZ					
80	240 DIESEL	4	2.4	6120-20 / 6120-70	#12
80	280E, 280CE, 280SE, SEL	L6	2.8	6100-00 / 6104-18 / 6102-00 / 6101-01 / 6120-39	#11
80	300D, 300TD, 300SD	L5	3.0	6120-20 / 6120-70	#12
80	450SE, SEL, SL	V8	4.5	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
81	240 DIESEL	L4	2.4	6120-20 / 6120-70	#12
81	280E, 280CE, 280SE, SEL	L6	2.8	6100-00 / 6104-18 / 6102-00 / 6101-01 / 6120-39	#11
81	300D, 300TD, 300SD	L5	3.0	6120-20 / 6120-70	#12
81	380SE, SEL, SEC	V8	3.8	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
81	380 SL	V8	3.8	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
82	240D	L4	2.4	6120-20 / 6120-70	#12
82	300D, 300TD, 300SD	L5	3.0	6120-20 / 6120-70	#12
82	380SE, SEL, SEC	V8	3.8	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
82	380 SL	V8	3.8	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
83	240 DIESEL	L4	2.4	6120-20 / 6120-70	#12
83	300D, 300TD, 300SD	L5	3.0	6120-20 / 6120-70	#12
83	380SE, SEL, SEC	V8	3.8	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
83	380 SL	V8	3.8	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
84	190D 2.2(DIESEL)	L4	2.2	6120-20 / 6120-70	#12
84	190E 2.3	L4	2.3	AVAILABLE CONFIGURATION TO FOLLOW	
84	300D, 300TD, 300SD	L5	3.0	6120-20 / 6120-70	#12
84	380 SL	V8	3.8	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
84	380 SE	V8	3.8	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
84	500 SEL, SEC	V8	5.0	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
85	190D 2.2(DIESEL)	L4	2.2	6120-20 / 6120-70	#12
85	190E 2.3	L4	2.3	6100-00 / 6104-44	#18
85	190E 2.3-16(16V)	L4	2.3	AVAILABLE CONFIGURATION TO FOLLOW	
85	300SD, 300TD	L5	3.0	6120-20 / 6120-70	#12
85	500 SL	V8	5.0	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
85	500 SEL, SEC	V8	5.0	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
86	190D 2.5(DIESEL)	L5	2.5	6120-20 / 6120-70	#12
86	190E 2.3	L4	2.3	6100-00 / 6104-44	#18
86	190E 2.3-16(16V)	L4	2.3	AVAILABLE CONFIGURATION TO FOLLOW	

YEAR	MODEL	CYL	LITERS	OIL FILTER PORT	APPLICATION # See Illustration Section 5.04
MERCEDES BENZ (continued)					
86	300E	L6	3.0	6100-00 / 6104-44	#18
86	300D, 300TD	L5	3.0	6120-20 / 6120-70	#12
86	300 SDL	L6	3.0	6120-20 / 6120-70	#12
86	420 SEL	V8	4.2	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
86	560 SEL, SEC	V8	5.6	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
86	560 SL	V8	5.6	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
87	190D 2.5(DIESEL)	L5	2.5	6120-20 / 6120-70	#12
87	190E 2.3	L4	2.3	6100-00 / 6104-44	#18
87	190E 2.3-16(16V)	L4	2.3	AVAILABLE CONFIGURATION TO FOLLOW	
87	190E 2.6	L6	2.6	6100-00 / 6104-44	#18
87	260E, 300E	L6	2.6/3.0	6100-00 / 6104-44	#18
87	300D, 300TD, 300SDL	L6	3.0	6120-20 / 6120-70	#12
87	420 SEL	V8	4.2	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
87	560 SEL, SEC	V8	5.6	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
87	560 SL	V8	5.6	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
88	190D 2.5(DIESEL)	L5	2.5	6120-20 / 6120-70	#12
88	190E 2.3	L4	2.3	6100-00 / 6104-44	#18
88	190E 2.6	L6	2.6	6100-00 / 6104-44	#18
88	260E, 300E, CE, TE	L6	2.6/3.0	6100-00 / 6104-44	#18
88	300SE, 300 SEL	L6	3.0	6100-00 / 6104-44	#18
88	420 SEL	V8	4.2	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
88	560 SEL, SEC	V8	5.6	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
88	560 SL	V8	5.6	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
89	190D 2.5(DIESEL)	L5	2.5	6120-20 / 6120-70	#12
89	190E 2.6	L6	2.6	6100-00 / 6104-44	#18
89	260E, 300E, CE, TE	L6	2.6/3.0	6100-00 / 6104-44	#18
89	300SE, 300 SEL	L6	3.0	6100-00 / 6104-44	#18
89	420 SEL	V8	4.2	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
89	560 SEL, SEC	V8	5.6	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
89	560 SL	V8	5.6	6100-00 / 6104-18 / 6120-33 / 6102-00 / 6101-01	#13
90	190E 2.6	L6	2.6	6100-00 / 6104-44	#18
90	300D 2.5(DIESEL)	L5	2.5	6120-20 / 6120-70	#12
90	260E, 300E, TE	L6	2.6/3.0	6100-00 / 6104-44	#18
90	300SE, 300 SEL	L6	3.0	6100-00 / 6104-44	#18
90	300 CE, 300 SL	L6	3.0	6120-10 / 6103-01 / 6120-91	#15
90	420 SEL	V8	4.2	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
90	500 SL(32V)	V8	5.0	6100-00 / 6104-18 / 6101-01 / 6120-48	#16
90	560 SEL, SEC	V8	5.6	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
91	190E 2.3	L4	2.3	6100-00 / 6104-44	#18

YEAR	MODEL	CYL	LITERS	OIL FILTER PORT	APPLICATION # See Illustration Section 5.04
MERCEDES BENZ (continued)					
91	190E 2.6	L6	2.6	6100-00 / 6104-44	#18
91	300D 2.5(DIESEL)	L5	2.5	6120-20 / 6120-70	#12
91	260E, 300E, TE	L6	2.6/3.0	6100-00 / 6104-44	#18
91	300 CE, 300 SL	L6	3.0	6120-10 / 6103-01 / 6120-91	#15
91	300 SDL	L6	3.5	6120-20 / 6120-70	#12
91	420 SEL	V8	4.2	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
91	500 SL(32V)	V8	5.0	6100-00 / 6104-18 / 6101-01 / 6120-48	#16
91	560 SEL, SEC	V8	5.6	6100-00 / 6104-18 / 6120-45 / 6101-01	#14
92	190E 2.6	L6	2.6	6100-00 / 6104-44	#18
92	300D 2.5(DIESEL)	L5	2.5	6120-20 / 6120-70	#12
92	260E, 300E, TE	L6	2.6/3.0	6100-00 / 6104-44	#18
92	300 CE, 300 SL	L6	3.0	6120-10 / 6103-01 / 6120-91	#15
92	300SE, 300 SEL	L6	3.2	6120-10 / 6103-01 / 6120-91	#15
92	300 SDL	L6	3.5	6120-20 / 6120-70	#12
92	400E, 400SE	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
92	500E	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
92	500SEL	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
92	500 SL(32V)	V8	5.0	6100-00 / 6104-18 / 6101-01 / 6120-48	#16
92	600SEL(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
93	190E 2.6	L6	2.6	6100-00 / 6104-44	#18
93	300D 2.5(DIESEL)	L5	2.5	6120-20 / 6120-70	#12
93	300E 2.8, 300E 4MATIC, 300TE	L6	2.8/3.0	6100-00 / 6104-44	#18
93	300E, CE, 300TE 4MATIC	L6	3.2	6120-10 / 6103-01 / 6120-91	#15
93	300SE, 300 SEL	L6	3.2	6120-10 / 6103-01 / 6120-91	#15
93	300 SDL	L6	3.5	6120-20 / 6120-70	#12
93	400E, 400SE	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
93	500E	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
93	500SEL, 500SEC	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
93	500 SL(32V)	V8	5.0	6100-00 / 6104-18 / 6101-01 / 6120-48	#16
93	600SEL, 600SEC, 600SL(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
94	C220(111)	L4	2.2	6120-10 / 6120-30 / 6120-74	#20
94	C280	L6	2.8	6120-10 / 6103-01 / 6120-91	#15
94	E320, S320, SL320	L6	3.2	6120-10 / 6103-01 / 6120-91	#15
94	S350(DIESEL)	L6	3.5	6120-16 / 6120-30 / 6120-63	#17
94	E420, S420	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
94	E500	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
94	SL500(32V)	V8	5.0	6100-00 / 6104-18 / 6101-01 / 6120-48	#16
94	S500(SEDAN, COUPE)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
94	S600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30

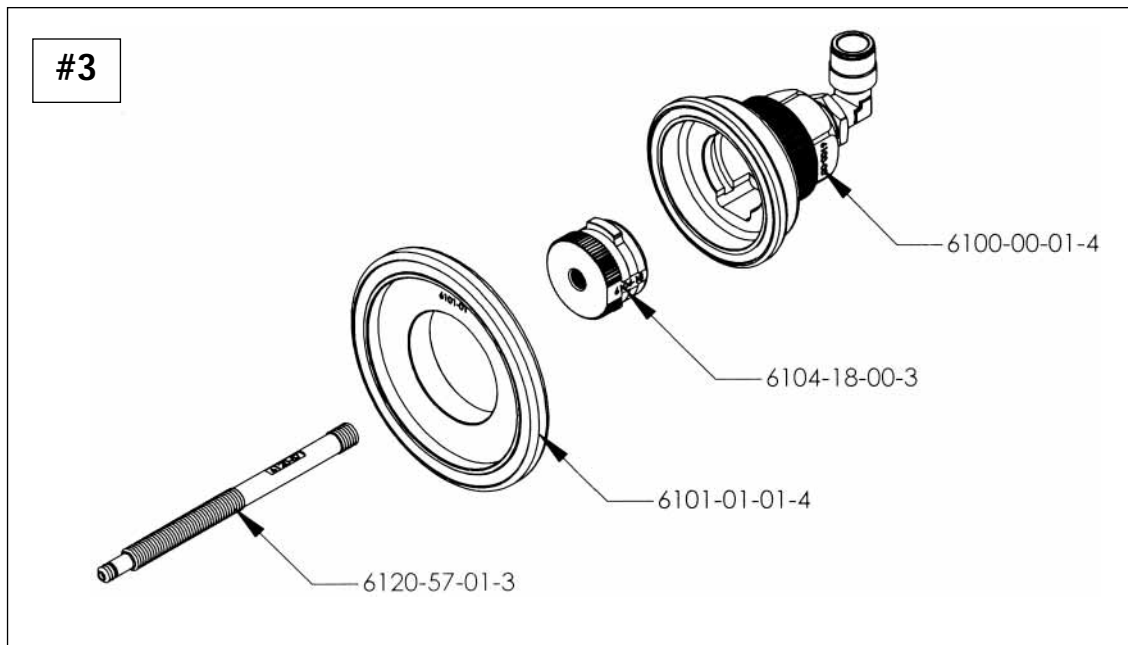
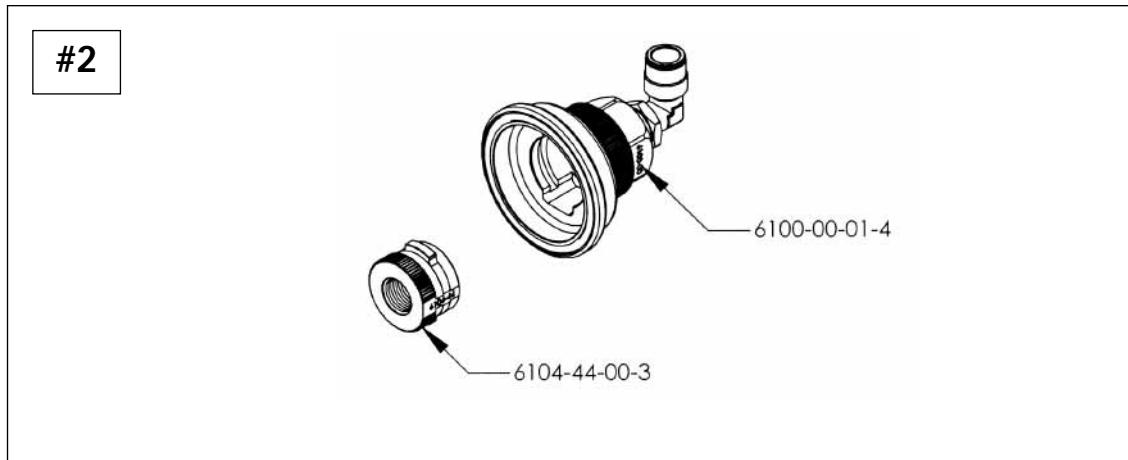
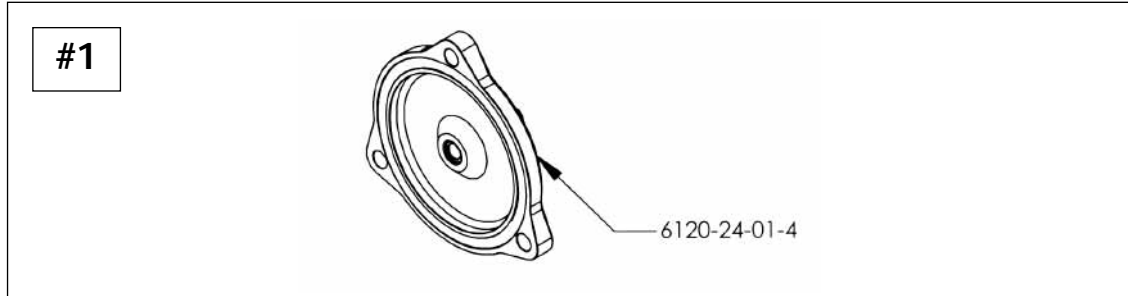
YEAR	MODEL	CYL	LITERS	OIL FILTER PORT	APPLICATION # See Illustration Section 5.04
MERCEDES BENZ (continued)					
95	C220(111)	L4	2.2	6120-10 / 6120-30 / 6120-74	#20
95	C280	L6	2.8	6120-10 / 6103-01 / 6120-91	#15
95	E300DIESEL(24V)(606)	L6	3.0	6120-16 / 6120-30 / 6120-65	#29
95	E320, S320, SL320	L6	3.2	6120-10 / 6103-01 / 6120-91	#15
95	S350(DIESEL)	L6	3.5	6120-16 / 6120-30 / 6120-63	#17
95	E420, S420	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
95	SL500(32V)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
95	S500(SEDAN,COUPE)(119)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
95	S600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
95	SL600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
96	C220(111)	L4	2.2	6120-10 / 6120-30 / 6120-74	#20
96	C280	L6	2.8	6120-10 / 6103-01 / 6120-91	#15
96	C36	L6	3.6	6120-10 / 6103-01 / 6120-91	#15
96	E300DIESEL(24V)(606)	L6	3.0	6120-16 / 6120-30 / 6120-65	#29
96	E320, S320, SL320	L6	3.2	6120-10 / 6103-01 / 6120-91	#15
96	E420(32V)	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
96	S420	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
96	SL500(32V)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
96	S500(SEDAN,COUPE)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
96	S600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
96	SL600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
97	C230	L4	2.3	6120-10 / 6120-30 / 6120-74	#20
97	C280	L6	2.8	6120-10 / 6103-01 / 6120-91	#15
97	C36	L6	3.6	6120-10 / 6103-01 / 6120-91	#15
97	E300DIESEL(24V)(606)	L6	3.0	6120-16 / 6120-30 / 6120-65	#29
97	E320, S320, SL320	L6	3.2	6120-10 / 6103-01 / 6120-91	#15
97	E420(32V)	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
97	S420	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
97	SL500(32V)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
97	S500(SEDAN,COUPE)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
97	S600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
97	SL600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
98	SLK-COMPRESSOR(111)	L4	2.3	6120-10 / 6120-30 / 6120-74	#20
98	C230(111)	L4	2.3	6120-10 / 6120-30 / 6120-74	#20
98	C280	L6	2.8	6120-10 / 6103-01 / 6120-91	#15
98	C36	L6	3.6	6120-10 / 6103-01 / 6120-91	#15
98	E300DIESEL(24V)(606)	L6	3.0	6120-16 / 6120-30 / 6120-65	#29
98	E320, S320, SL320	L6	3.2	6120-10 / 6103-01 / 6120-91	#15
98	E320	V6	3.2	6120-10 / 6103-01 / 6120-91	#20
98	E420(32V)	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19

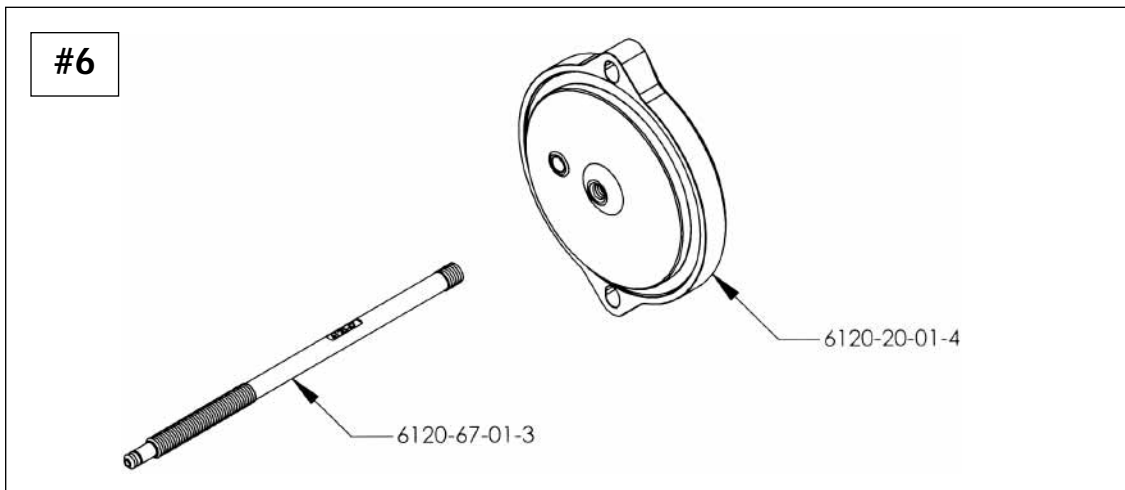
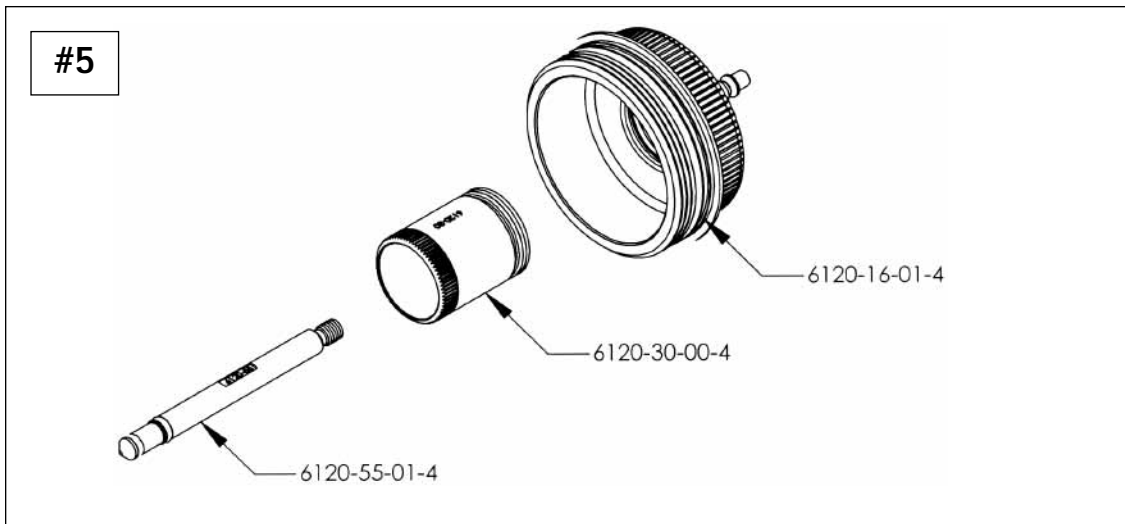
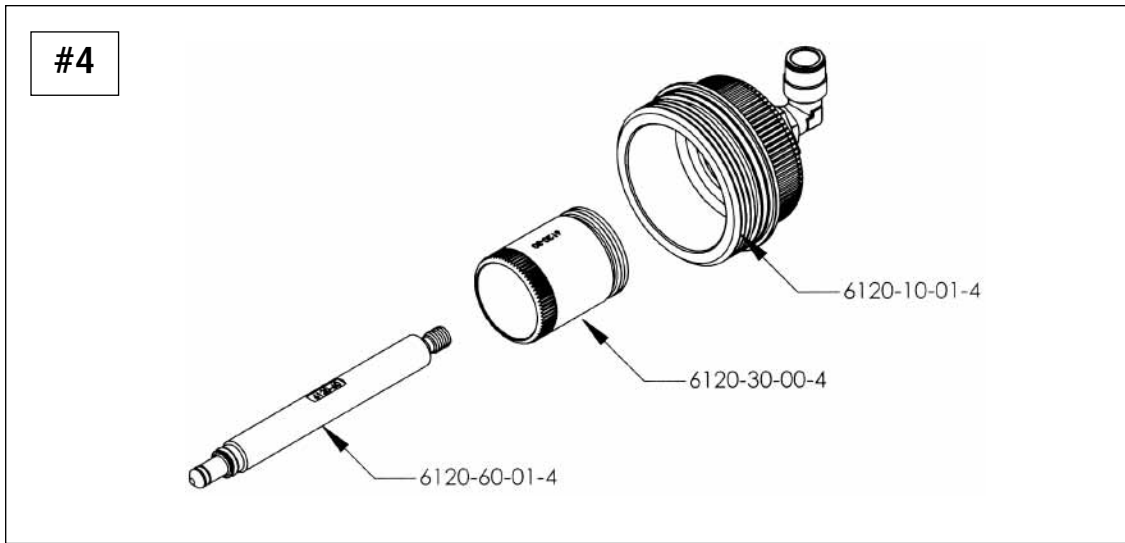
YEAR	MODEL	CYL	LITERS	OIL FILTER PORT	APPLICATION # See Illustration Section 5.04
MERCEDES BENZ (continued)					
98	ML-320(112)	V6	3.2	6120-10 / 6120-30 / 6120-74	#20
98	S420	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
98	SL500(32V)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
98	S500(SEDAN,COUPE)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
98	SL600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
98	S600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
99	SLK-COMPRESSOR(111)	L4	2.3	6120-10 / 6120-30 / 6120-74	#20
99	C230(111)	L4	2.3	6120-10 / 6120-30 / 6120-74	#20
99	C280	L6	2.8	6120-10 / 6103-01 / 6120-91	#15
99	C36	L6	3.6	6120-10 / 6103-01 / 6120-91	#15
99	E300DIESEL(24V)(606)	L6	3.0	6120-16 / 6120-30 / 6120-65	#29
99	E320, S320, SL320	V6	3.2	6120-10 / 6103-01 / 6120-91	#20
99	E420(32V)	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
99	ML-320(112)	V6	3.2	6120-10 / 6120-30 / 6120-74	#20
99	S420	V8	4.2	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
99	SL500(32V)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
99	S500(SEDAN,COUPE)	V8	5.0	6100-00 / 6104-18 / 6101-00 / 6120-48	#19
99	SL600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
99	S600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
2000-	A-CLASS			6120-04 / 6120-30 / 6120-50	#41
2000	SLK-COMPRESSOR(111)	L4	2.3	6120-10 / 6120-30 / 6120-74	#20
2000	C230(111)	L4	2.3	6120-10 / 6120-30 / 6120-74	#20
2000	C280	L6	2.8	6120-10 / 6103-01 / 6120-91	#15
2000	C36	L6	3.6	6120-10 / 6103-01 / 6120-91	#15
2000	E300DIESEL(24V)(606)	L6	3.0	6120-16 / 6120-30 / 6120-65	#29
2000	E320, S320, SL320	V6	3.2	6120-10 / 6103-01 / 6120-91	#20
2000	E430(32V)(113)	V8	4.3	6120-10 / 6120-30 / 6120-74	#20
2000	CLK-320(112)	V6	3.2	6120-10 / 6120-30 / 6120-74	#20
2000	CLK-430(113)	V8	4.3	6120-10 / 6120-30 / 6120-74	#20
2000	ML-320(112)	V6	3.2	6120-10 / 6120-30 / 6120-74	#20
2000	ML-430(113)	V8	4.3	6120-10 / 6120-30 / 6120-74	#20
2000	S430	V8	4.3	6120-10 / 6120-30 / 6120-74	#20
2000	SL500(32V)	V8	5.0	6120-10 / 6120-30 / 6120-74	#20
2000	S500(SEDAN,COUPE)	V8	5.0	6120-10 / 6120-30 / 6120-74	#20
2000	SL600(120)	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
2000	S600(137)	V12	6.0	6120-10 / 6120-30 / 6120-69	#31
2001	SLK-240	V6	2.4	6120-10 / 6120-30 / 6120-74	#20
2001	SLK-320	V6	3.2	6120-10 / 6120-30 / 6120-74	#20
2001	SLK-430	V8	4.3	6120-10 / 6120-30 / 6120-74	#20

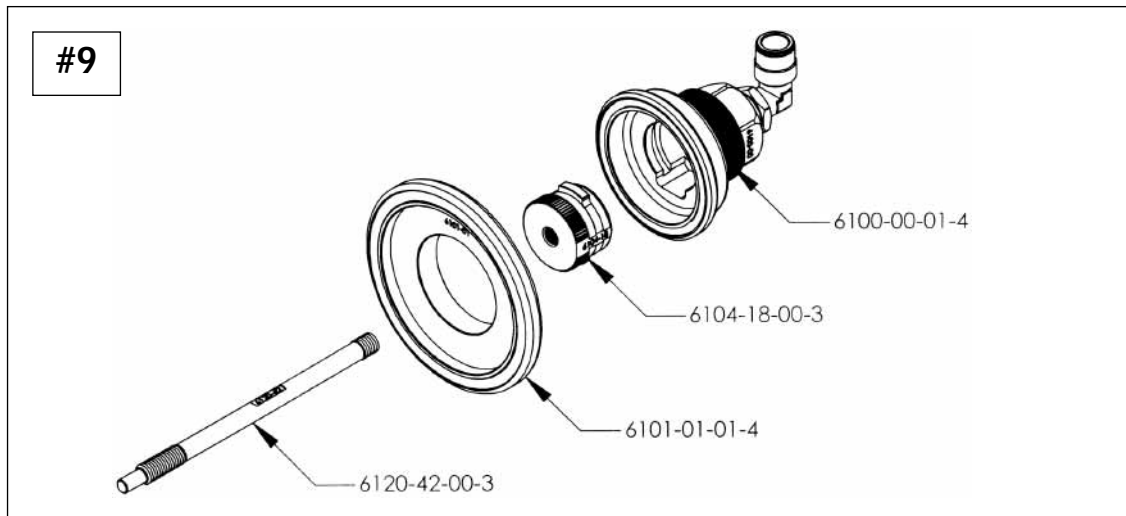
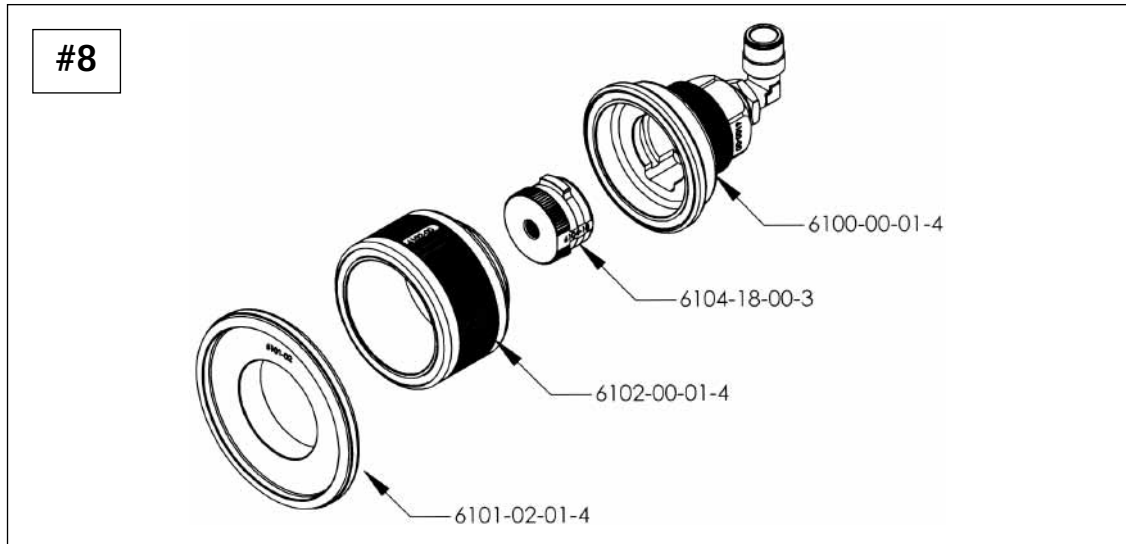
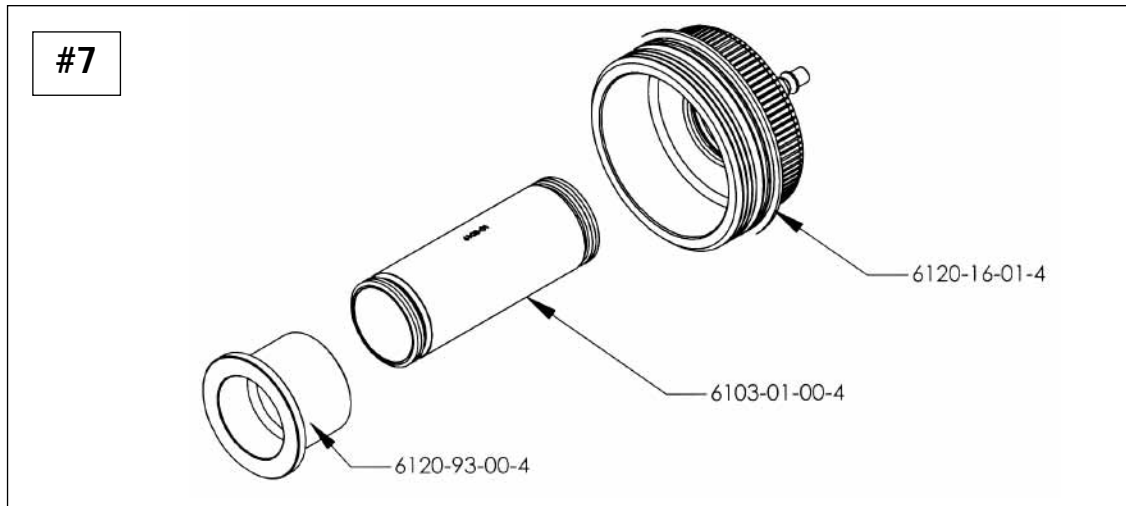
YEAR	MODEL	CYL	LITERS	OIL FILTER PORT	APPLICATION # See Illustration Section 5.04
MERCEDES BENZ (continued)					
2001	E300DIESEL(24V)(606)	L6	3.0	6120-16 / 6120-30 / 6120-65	#29
2001	E320, S320, SL320	V6	3.2	6120-10 / 6120-30 / 6120-74	#20
2001	E430(32V)(113)	V8	4.3	6120-10 / 6120-30 / 6120-74	#20
2001	E55 AMG	V8	5.5	6120-10 / 6120-30 / 6120-74	#20
2001	CLK-320(112)	V6	3.2	6120-10 / 6120-30 / 6120-74	#20
2001	CLK-430(113)	V8	4.3	6120-10 / 6120-30 / 6120-74	#20
2001	CLK-55 AMG	V8	5.5	6120-10 / 6120-30 / 6120-74	#20
2001	ML-320(112)	V6	3.2	6120-10 / 6120-30 / 6120-74	#20
2001	ML-430(113)	V8	4.3	6120-10 / 6120-30 / 6120-74	#20
2001	ML-55 AMG	V8	5.5	6120-10 / 6120-30 / 6120-74	#20
2001	S430	V8	4.3	6120-10 / 6120-30 / 6120-74	#20
2001	SL500(32V)	V8	5.0	6120-10 / 6120-30 / 6120-74	#20
2001	S500(SEDMAN, COUPE)	V8	5.0	6120-10 / 6120-30 / 6120-74	#20
2001	SL600	V12	6.0	6120-10 / 6103-01 / 6120-94	#30
2001	S600(137)	V12	6.0	6120-10 / 6120-30 / 6120-69	#31
MINI COOPER					
2002	MINI COOPER	L4	1.6	6120-14 / 6103-03	#38
PORSCHE					
97-	BOXSTER(ALL)	H6	2.5/3.2	6120-10	#32
99-	996	H6	3.2/3.4	6120-10	#32
ROLLS ROYCE					
62-90	ALL	V8		6100-00 / 6104-18 / 6101-03 / 6120-36	#25
98		V12	5.4	6120-16 / 6103-01 / 6120-93	#7
TOYOTA					
07-	AVALON	V6		6120-17	#40
VOLKSWAGEN					
	ALL 2.8 LITER VR6	V6	2.8	6120-16	#27
	ALL 3.2 LITER VR6	V6	3.2	6120-13	#36
	1.9 LITER TDI	L4	1.9	6120-10 / 6120-30 / 6120-64	#37

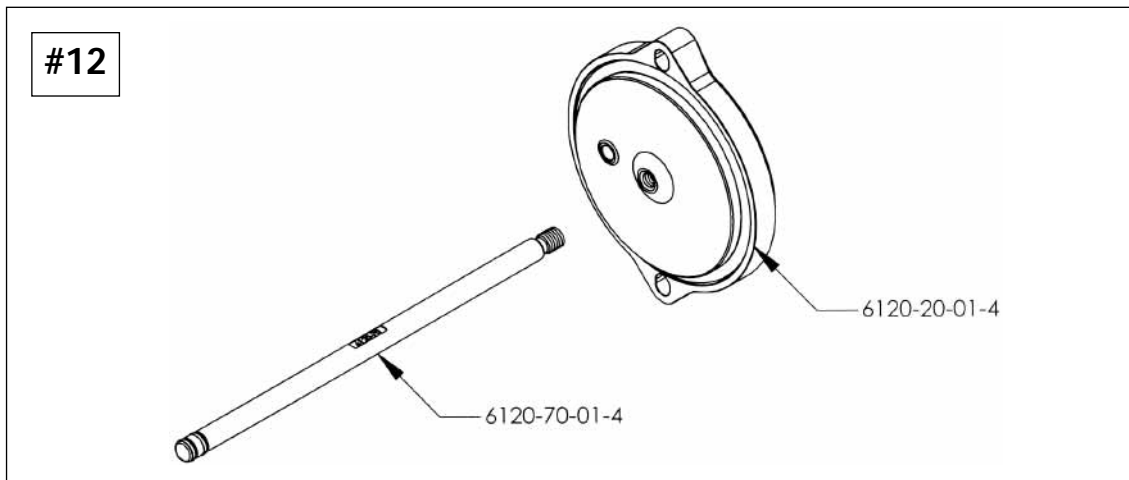
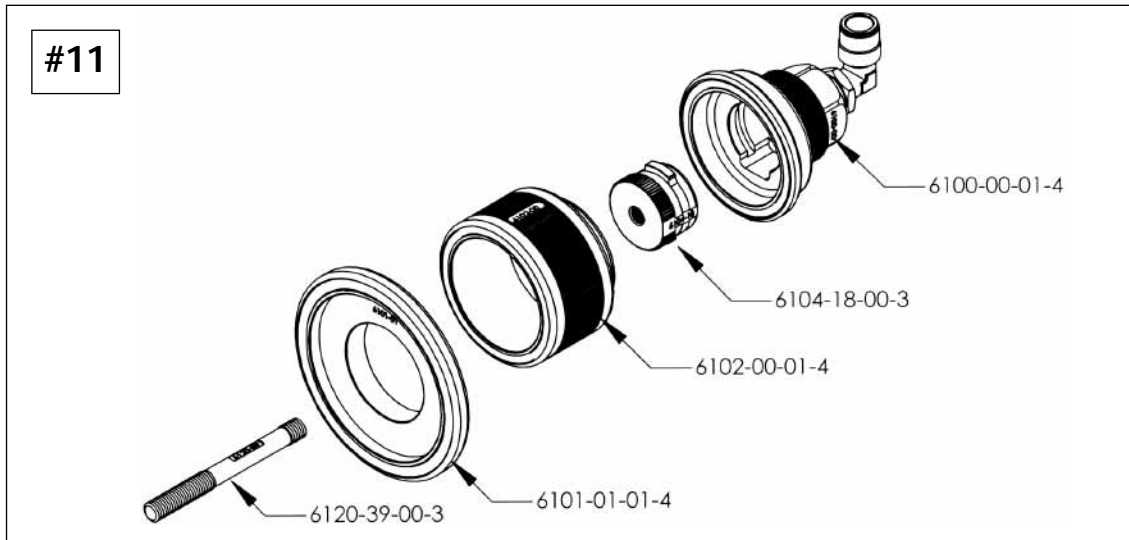
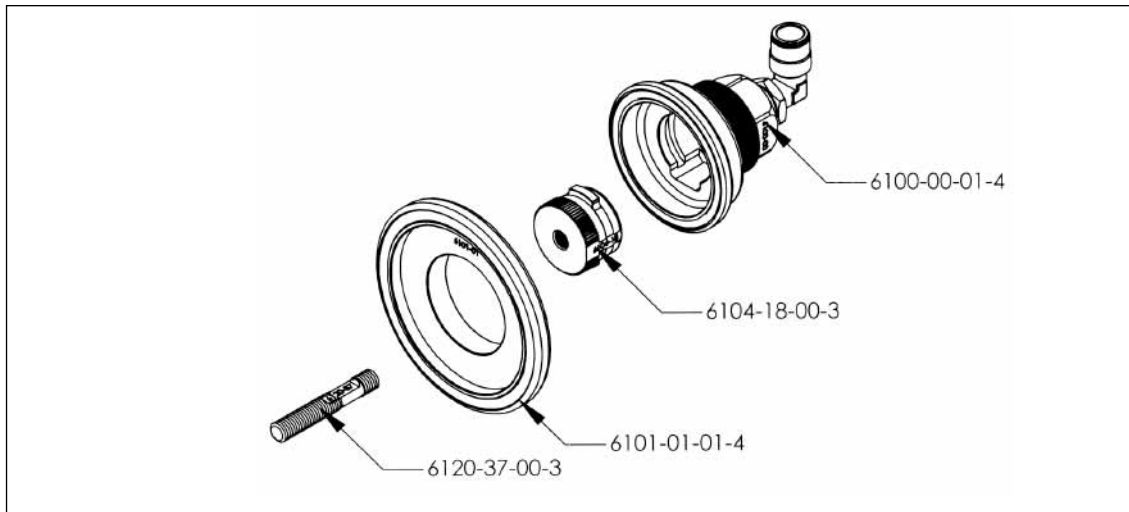
YEAR	MODEL	CYL	LITERS	OIL FILTER PORT	APPLICATION # See Illustration Section 5.04
VOLVO					
2000-	40,60,70,80 SERIES	ALL		6120-12 / 6120-80	#26
2004-	40 SERIES			6120-10	#32

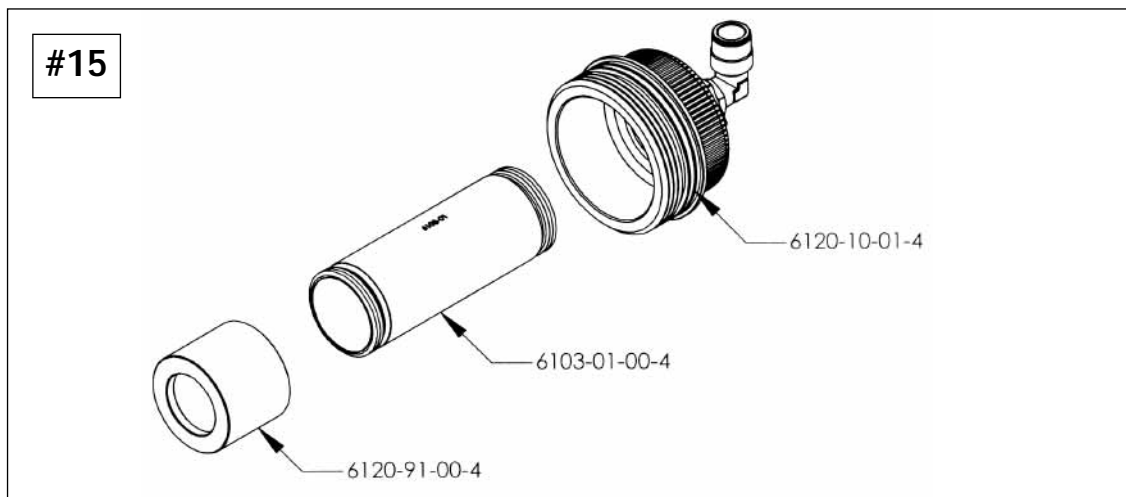
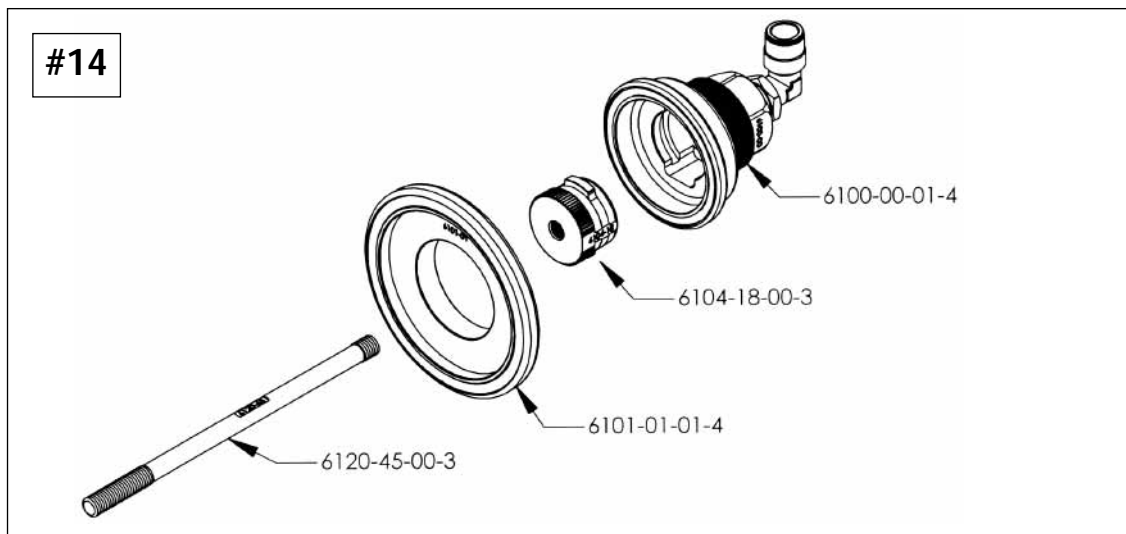
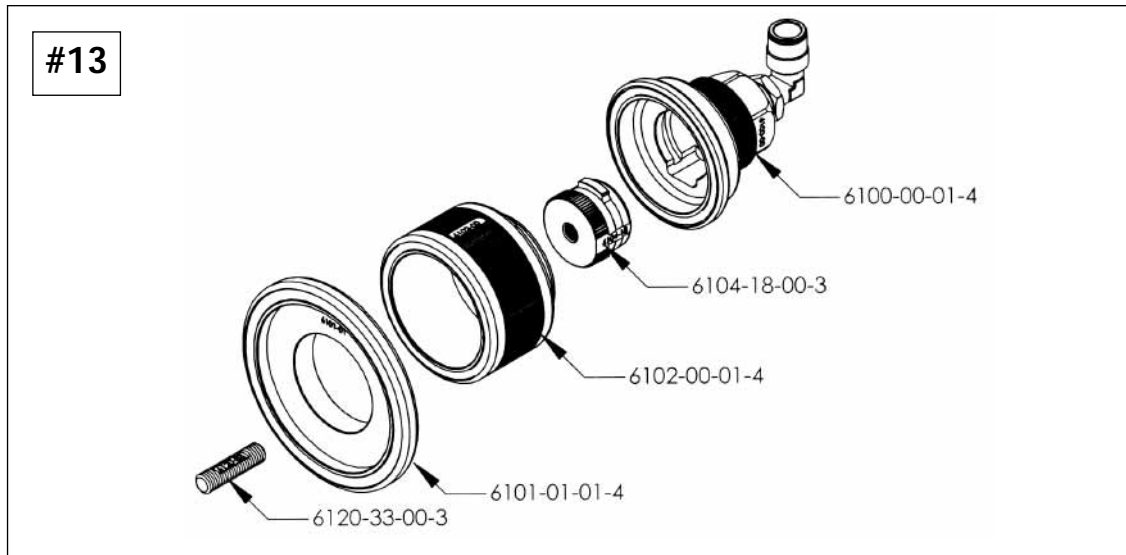
5.04 CANISTER ADAPTER APPLICATION ILLUSTRATIONS (STATIC ONLY)

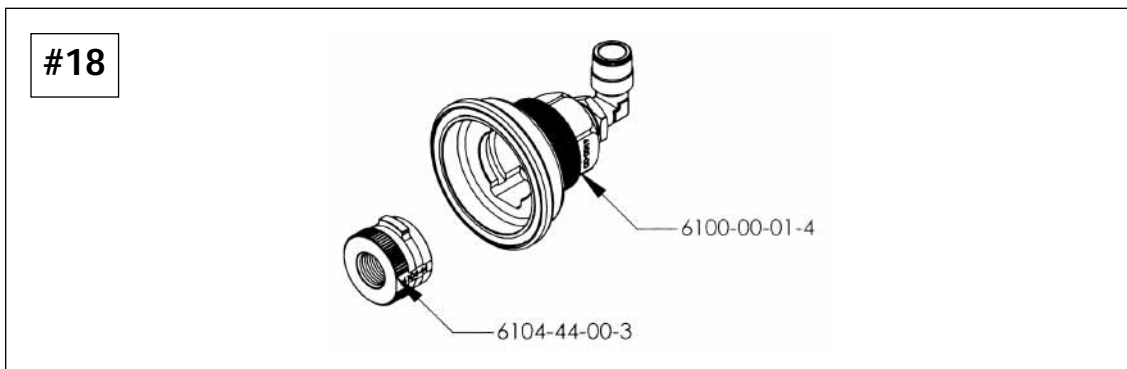
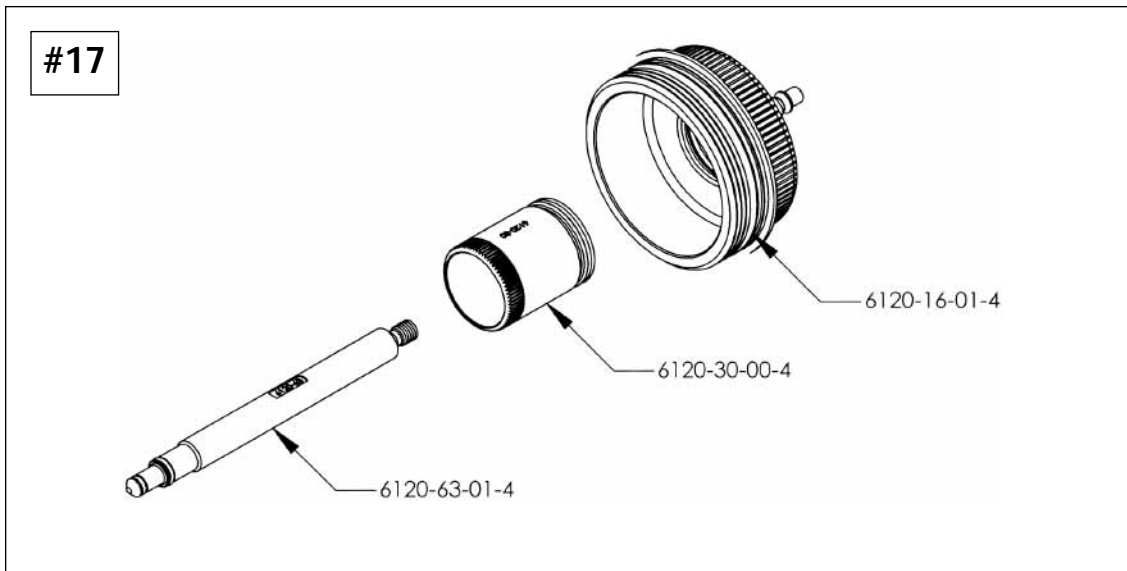
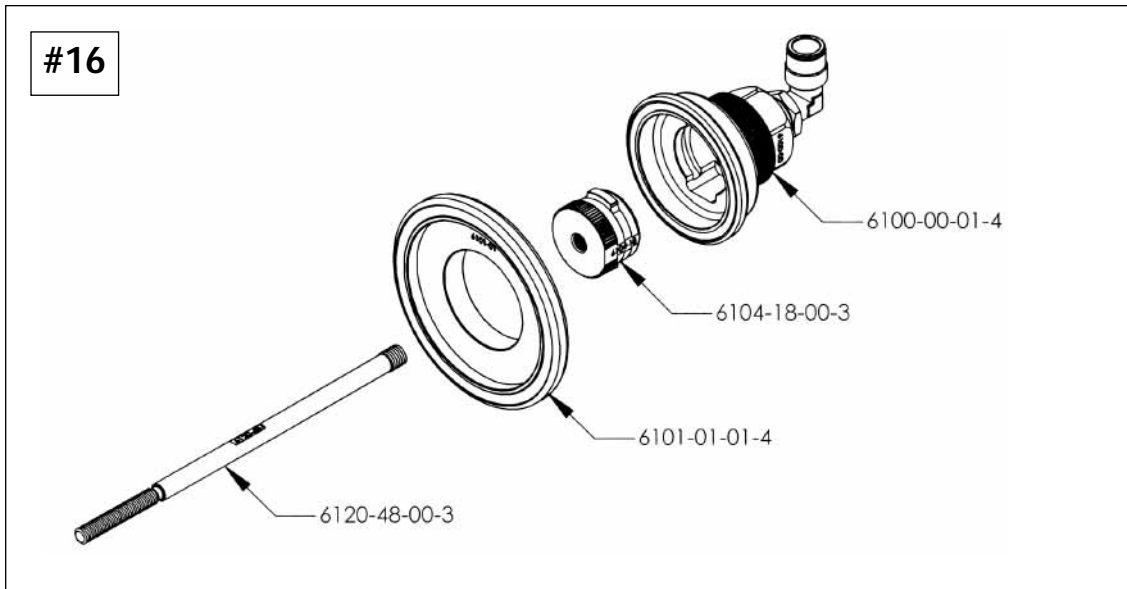


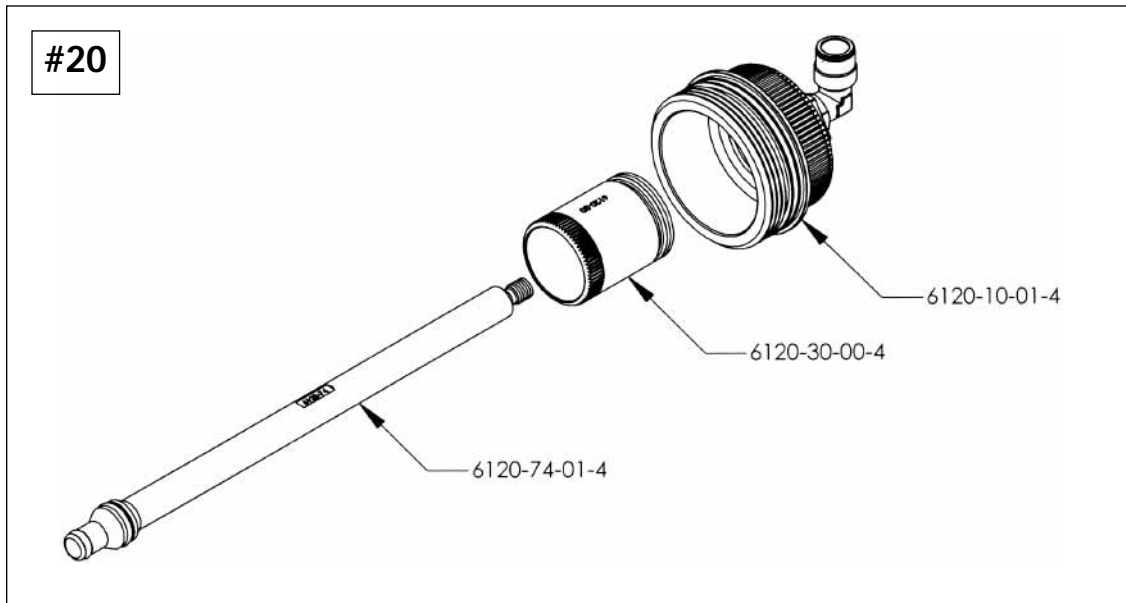
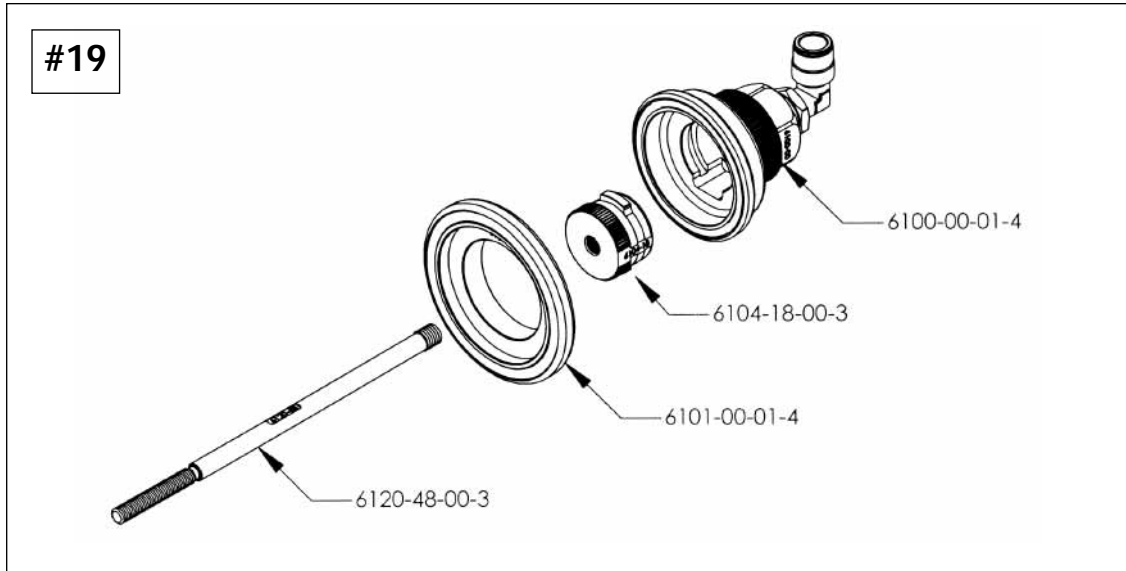






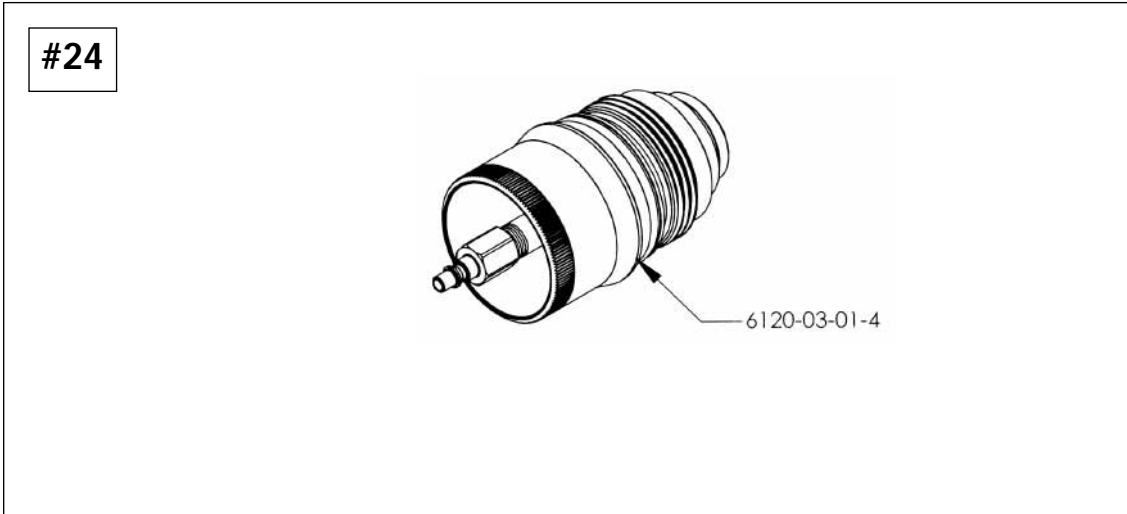
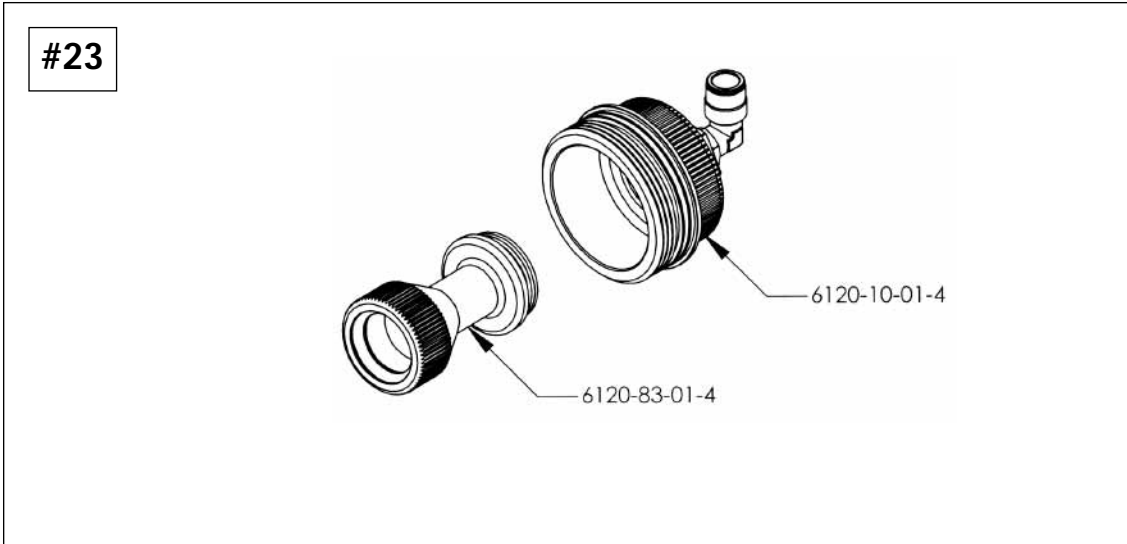
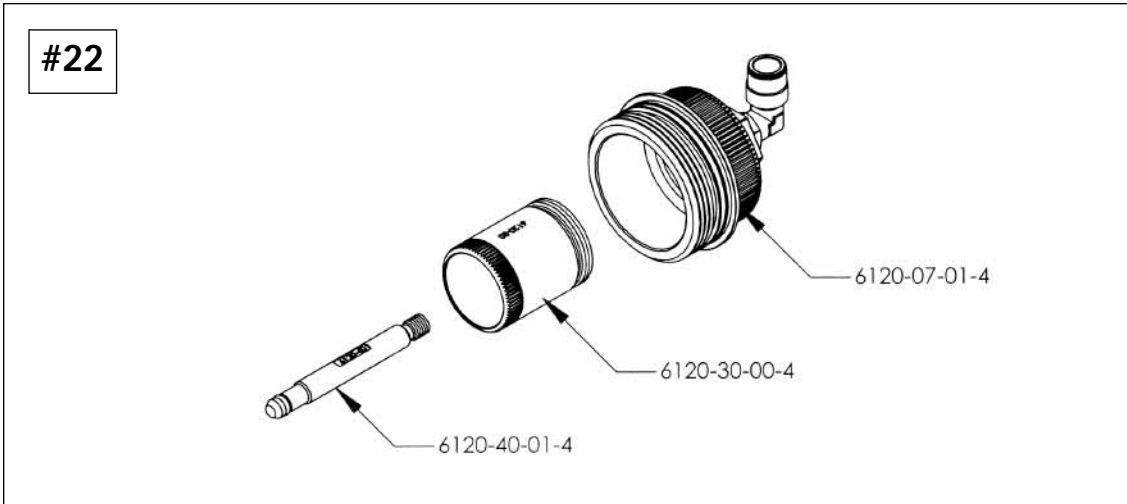




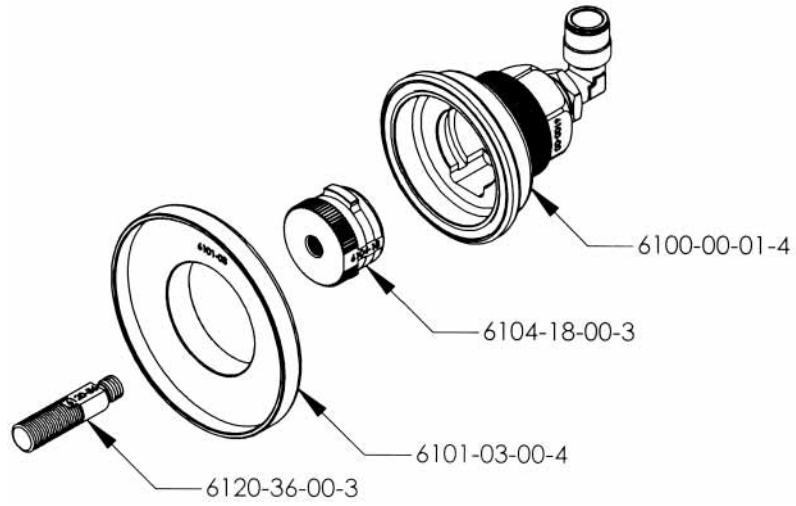


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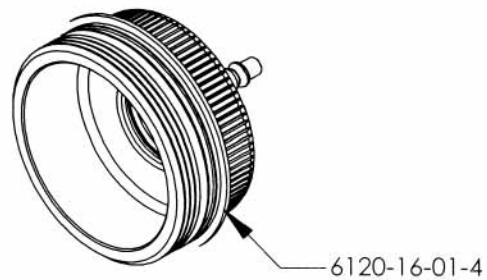
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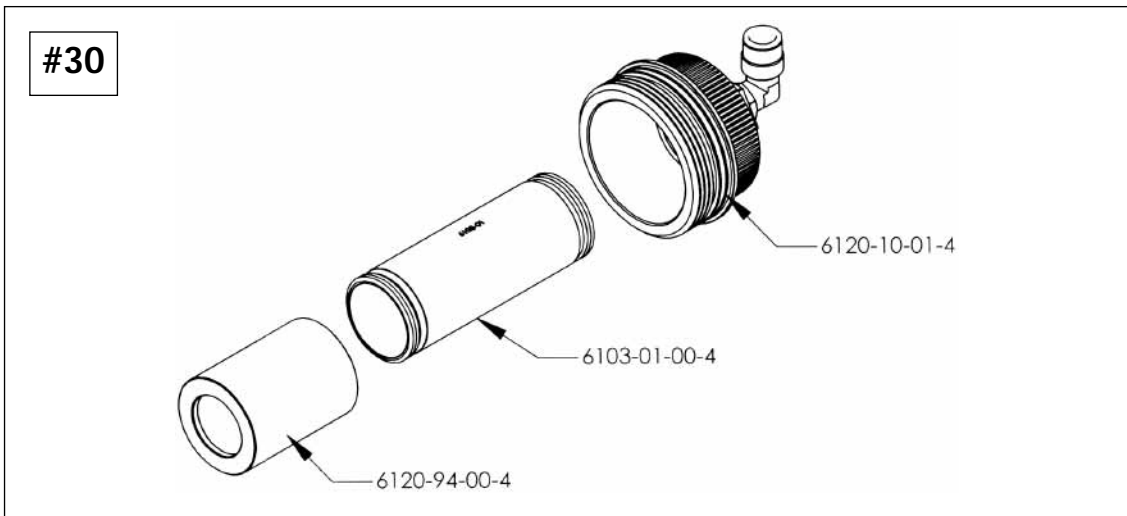
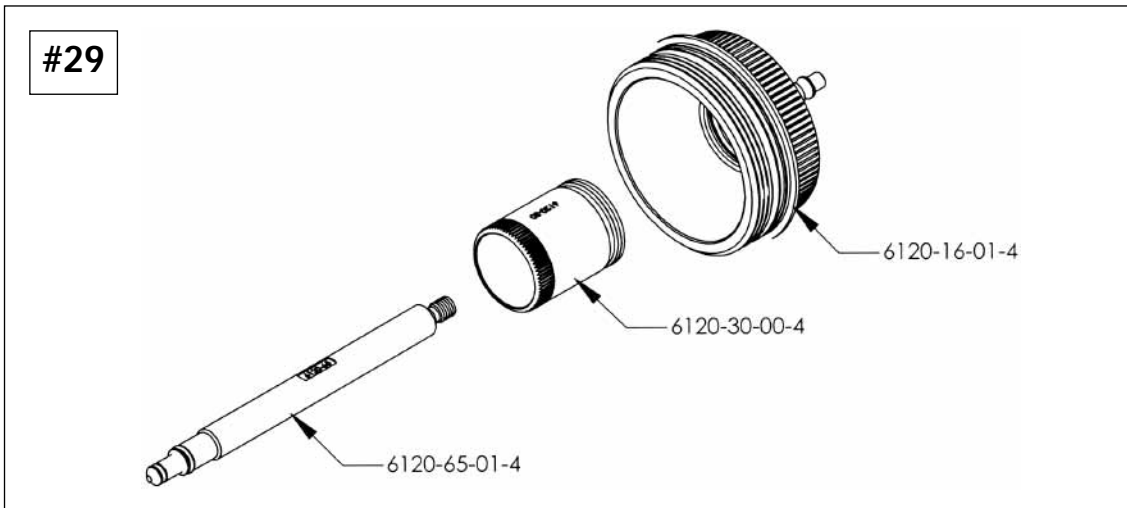
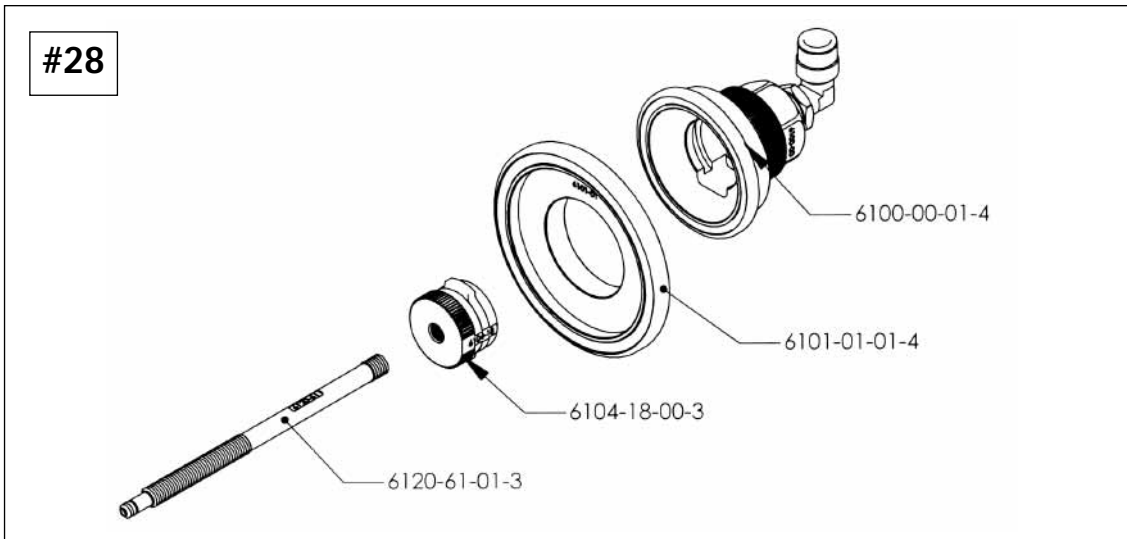


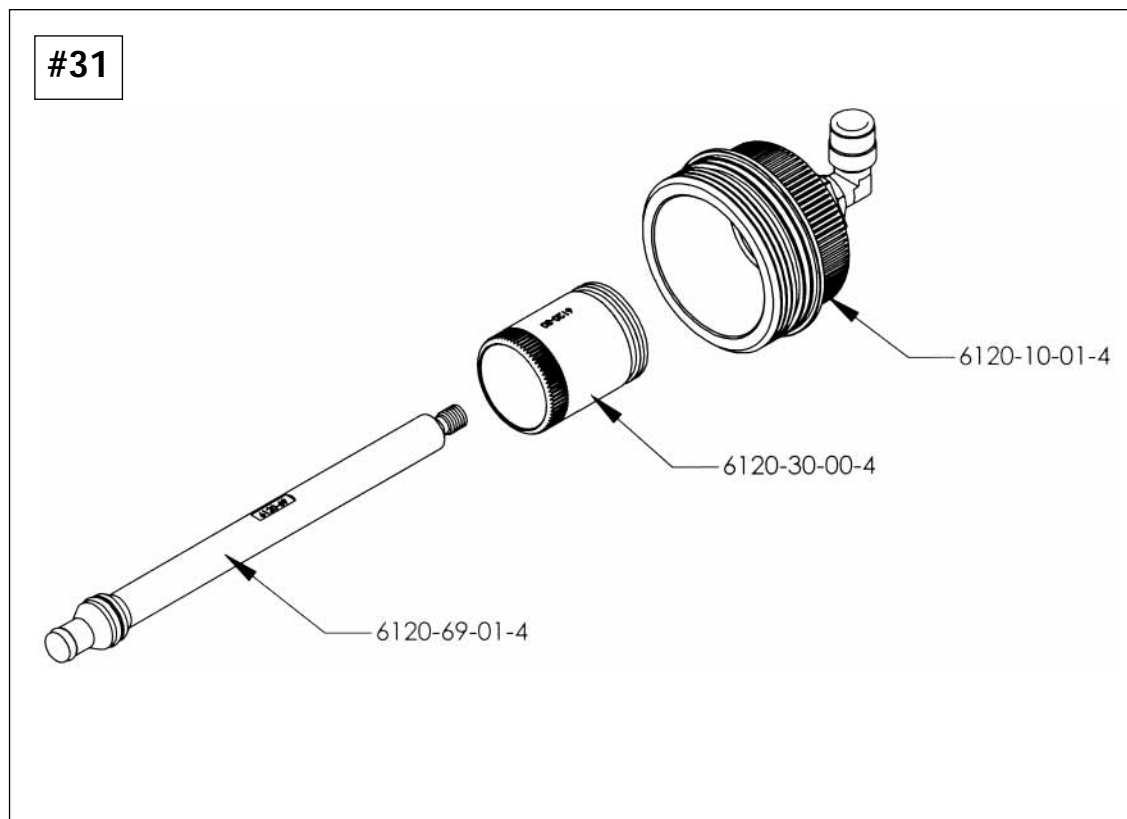
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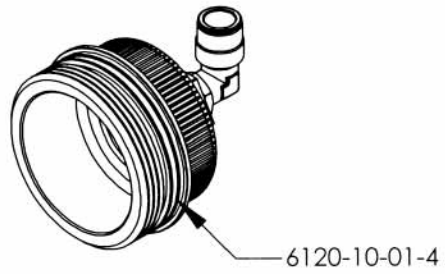
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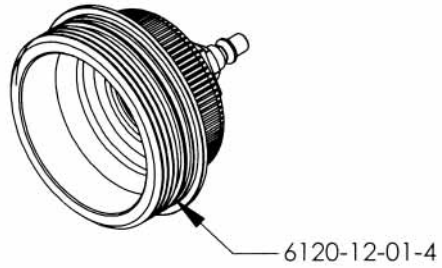




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VII. APPENDIX B - REPLACEMENT PARTS

6.01 REPLACEMENT PARTS DIAGRAM

		
<p>3116-35-11-1 Relay, 12 VDC</p>	<p>5220-12-51-2 Control panel - Printed Circuit Board</p>	
		
<p>2251-54-81-3 Pump, Diaphragm 115 VAC, 4.3 GPM Assy.</p>	<p>2252-54-81-3 Pump, Diaphragm 115 VAC, 4.9 GPM Assy.</p>	<p>0901-56-89-2 Hose, 3/8" ID X 12' External Pressure (RED)</p>
		
<p>0901-56-89-1 Hose, 1/2" ID X 12' External Recovery (BLACK)</p>	<p>3113-58-50-5 Sensor, Level 1/2" NPTM X 6" Leads X 3 Pin Connector</p>	<p>2230-01-00-4 5" clear bowl with O-ring (O-ring 6802-37-00-1)</p>

6.01 REPLACEMENT PARTS DIAGRAM (CONTINUED)

 <p>3050-21-40-0 Fuse Holder for 1-1/4" Fuses</p>	 <p>3090-13-11-3 Switch Rocker 250VAC W/Actuator</p>	 <p>3160-68-12-1 Audio Signal 3-28VDC</p>
 <p>3071-10-10-4 Power Cord K120 VAC X 10'</p>	 <p>2022-12-10-1 Quick Disconnect, Body S/22 X 1/4" NPTF</p>	 <p>2025-32-10-1 Quick Disconnect, Body S/25 X 3/8" NPTF"</p>
 <p>6901-01-00-1 Wrench 4" for Canister Bowl</p>	 <p>1635-44-40-4 Wheel, Swivel Locking Caster 4" OD</p>	 <p>1631-09-61-2 Wheel, 9" OD</p>

6.02 ORDERING REPLACEMENT PARTS

ORDERING ADAPTERS AND REPLACEMENT PARTS
1-877-906-1395 (U.S. AND CANADA)

VIII. APPENDIX C - MAINTENANCE



CAUTION



- Frequently inspect and clean any tools used, and lubricate all non-sealed ratchet mechanisms with light oil.
- The use of any other accessories not specified in this manual may create a hazard.
- Read, understand and follow Safety Instructions in the front pages of this manual and on product safety labels.

7.01 MAINTENANCE PROCEDURES

The machine requires a routine maintenance to be performed by an authorized technician, after every 588* flushes. The Main Menu line item "MAINTENANCE IN" always displays the number of flushes remaining before the next required routine maintenance. The counter will automatically count down after each service is completed when the machine has only 20 flushes remaining.

ADVANTAGE ENGINEERING ENGINE FLUSH SOLUTION

Section V - Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	
Incompatibility (<i>Materials to Avoid</i>)		Avoid contact with strong oxidants.	
Hazardous Decomposition or Byproducts		Under Fire Conditions: Oxides of sulfur and carbon.	
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	X	X	X
Health Hazards (<i>Acute and Chronic</i>)			
Inhalation: Vapors or mist may cause respiratory tract irritation. High levels may also cause central nervous system excitation followed by depression, headache, dizziness, nausea, vomiting, weakness, incoordination, delirium and coma. Skin: May cause smarting, redness, and irritation. Chronic exposure may cause defatting and dryness of the skin, severe irritation, and dermatitis. Ingestion: Acute exposure may cause nausea, cramping, diarrhea, and possible systems of central nervous system depression, pulmonary edema, and death.			
Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	N/A	N/A	N/A

Signs and Symptoms of Exposure Inhalation: Respiratory tract irritation. Skin: Smarting, redness, and irritation.

Medical Conditions Generally Aggravated by Exposure Many petroleum hydrocarbons and synthetic lubricants pose potential health risks which vary from person to person. As a precaution, exposure to liquids, fumes, mists and vapors should be minimized.

Emergency and First Aid Procedures

*Ingestion: do not induce vomiting. Call a physician or poison control center immediately. *Eyes: flush immediately with large amounts of water; seek medical attention if irritation develops. *Skin: remove contaminated clothing, wash exposed skin with soap and water or waterless skin cleaner. *Inhalation: move exposed person to fresh air immediately. Perform artificial respiration if breathing has stopped. Consult a physician immediately.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled Recover free product. Add sand, earth, sawdust, or suitable absorbent to spill area. Keep product out of sewers and waterways by diking or impounding.

Waste Disposable Method Dispose of as required by state and federal laws regulating motor oil.

Precautions to Be Taken in Handling and Storing No ventilation needed during normal use. Neoprene, polyvinyl or polyethylene gloves as required. Chemical goggles. Oil resistant or protective garment if needed.

Other Precautions Keep away from extreme heat or open flame. Do not reuse soiled clothing without laundering.

Section VIII - Control Measures

Respiratory Protection (*Specify Type*) No special ventilation needed during normal use.

Ventilation	Local Exhaust	X	Special	Use supplied air respirator during fire.
	Mechanical (<i>General</i>)		Other	
Protective Gloves	Neoprene, polyvinyl or polyethylene		Eye Protection	Chemical goggles.
Other Protective Clothing or Equipment		Oil resistant or protective garment if needed.		
Work/Hygienic Practices		Wash exposed skin with soap and water or waterless skin cleaner.		

LIMITED ONE (1) YEAR WARRANTY OIL PRO X-SERIES

Advantage Engineering warrants only to the original Purchaser that under normal use, care and service, the Equipment (except as otherwise provided herein) shall be free from defects in material and workmanship for one year from the date of original invoice. External hoses, remote control modules, adapters and all other attachments, supplies and consumables (except as otherwise provided herein) are warranted for 90 calendar days from the date of original invoice. Filter elements are not warranted.

SELLER'S OBLIGATIONS UNDER THIS WARRANTY ARE LIMITED SOLELY TO THE REPAIR OR, AT SELLER'S OPTION, REPLACEMENT OF EQUIPMENT OR PARTS WHICH TO SELLER'S SATISFACTION ARE DETERMINED TO BE DEFECTIVE AND WHICH ARE NECESSARY, IN SELLER'S JUDGEMENT, TO RETURN THE EQUIPMENT TO GOOD OPERATING CONDITION. NO OTHER WARRANTIES EXPRESS OR IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY AND ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED.

This warranty does not cover (and separate charges for parts, labor and related expenses shall apply to) any damage to, malfunctioning, inoperability or improper operation of the Equipment caused by, resulting from or attributable to (A) abuse, misuse or tampering; (B) alteration, modification or adjustment of the Equipment by anyone other than Seller's authorized representatives; (D) improper or negligent use, application, operation, care, cleaning, storage or handling; (E) fire, water, wind, lightning or other natural causes; (F) adverse environmental conditions, including, without limitation, excessive heat, moisture, corrosive elements, or dust or other air contaminants, radio frequency interference, electric power failure, power line voltages beyond those specified for the equipment, unusual physical, electrical or electromagnetic stress, and/or any other condition outside of Seller's environmental specifications; (G) use of the Equipment in combination or connection with other equipment, attachments, supplies or consumables not manufactured or supplied by Seller; or (H) failure to comply with any applicable federal, state or local regulation.

Repairs or replacements qualifying under this Warranty will be performed on regular business days during Seller's normal working hours within a reasonable time following Purchaser's request. All requests for Warranty service must be made during the stated Warranty period. This warranty is non-transferable.

