



aerospace climate control electromechanical filtration fluid & gas handling hydraulics pneumatics process control sealing & shielding





# **Lubrication Filtration Systems**

Lube Oil, Hydraulic Fluid, Transmission Fluid, and Fluid Conditioning Monitors





ENGINEERING YOUR SUCCESS.

# Table Of Contents

Racor Absolute Bypass Oil Cleaners	3-6
Bypass Oil Cleaning System	3
Light Duty Systems	4
Bypass Filtration Kits	5
High Volume Systems	6
Engine Lube Oil Filtration	7-14
Solutions For OEM's	8-9
Testing Capabilities	10-11
Filtration Media	12-13
Application/Filter Kits	14
Transmission Filtration	15
Hydraulic Filtration	16-17
Water Absorbing Filters	
Fluid Transfer	
Racor Capabilities	18-19
PFG Manufacturing Contacts	20

# Absolutely. Clean Oil.

Parker Hannifin Corporation **Racor Division** 3400 Finch Road Modesto, CA 95353 phone 800 344 3286 fax 209 529 3278 www.parker.com/racor



# Racor Absolute Series Unique Bypass Oil Cleaning System

The Racor Absolute Series bypass oil cleaners were developed to increase the life span of engine oil by reducing the contaminants in the oil resulting in longer full flow filter life and lower maintenance costs. Standard engine oil change intervals are in place based on the capacity (life) of the oil filter and the condition of the engine oil. With the Racor Absolute Series bypass oil cleaner installed, the engine oil stays many times cleaner, for a longer period of time. Racor Absolute is a unique oil cleaning system that puts theoretical filtration principles and mechanisms into practice. Low flow, low pressure, and axial filtration combined with special cellulose filter media enables us to achieve ultimate filtration.

- Removing up to 99% of all solid contaminates.
- Reducing the free water concentration
- Eliminating resins and oxidation products.

- Longer life for engine components.
- Significant reduction of oil consumption and disposal cost.
- 2 to 4 times fewer expensive full flow filter cartridges.
- An important decrease of equipment down time.
- Reduce operating cost.
- Increase profit.

## The Absolute Filter

The Absolute replacement filter element is the heart of the Absolute bypass filtration system. Made from a special cellulose material wound onto a central core, it combines micro and depth filtration by using the axial filtration principle (flow direction from the top to the bottom).

This filter design forces the oil to flow through 114 mm of filtration media and to pass through 3 stages of different densities. The larger particles are retained on the top of the filter (1), (a very good diagnostic tool) smaller particles are trapped in the next stage (2), and the smallest particles are trapped in the lower compressed part of the filter (3). This progressive removal of particles result in a very high dirt absorption capacity.

Additionally the cellulose material allows water absorption of up to 200 ml in the filter. The most remarkable and noticeable feature of the Racor Bypass filter is it's ability to remove resins and oxidation products. The resin removal results from a combination of a special cellulose material with a long flow distance (114 mm) through the filter.

This combination of 3 features and the high level of efficiency makes the Racor Absolute series a unique oil cleaner, not just a filter, worldwide.



See Brochure 7815 for more information.

# Racor Absolute Series Unique Bypass Oil Cleaning System

## Light Duty Single Unit Bypass Systems

These Light duty filtration units are designed to efficiently and cost effectively clean smaller volumes of lubrication fluids. Effectively removing wear particles, moisture, and sludge in smaller engine applications.

## Racor Bypass Oil Filtration

For many years Racor has sold the LFS 800, LFS 801, and LFS 802 bypass oil filters with their string wound filters that capture moisture and engine damaging contaminants.

Unfortunately, the LFS 800 series housings are no longer sold. These heavy-duty housings are dependable and designed for long life with many units still in service. Racor will maintain replacement filters to service our valuable customers.

The chart shows the replacement filters for the respective LFS 800 series housings as well as the complete superseded part number which in many cases can replace the LFS 801 and LFS 802 series housings with minimal effort.







Specifications	ABS10300	ABS10450
Working Pressure	72.5 PSI (5 bar)	72.5 PSI (5 bar)
Application Capacity	30 qts (28 L)	50 qts (47 L)
Port Size (inlet/outlet)	1/4" NPT	1/4" NPT
Dimensions	W6.38 x D6.54 x H12.48 in. (W162 x D166 x H317 mm)	W8.03 x D8.11 x H12.64 in. (W204 x D206 x H321 mm)
Weight	8 lbs (3.5 kg)	12 lbs (5.5 kg)

#### Absolute Replacement Parts List

Model	ABS10300	ABS10450
Seal Service Kit	ABS44235	ABS44250

#### Absolute Replacement Filters

ABS10300 ABS20330 ABS20370 ABS25350	3 micron filter 5 micron filter 10 micron filter	
ABS10450 ABS20430 ABS20470 ABS25450	3 micron filter 5 micron filter 10 micron filter	Dates Dates

#### LFS Replacement Filters

LFS 800 Assembly	LFS 800 Replacement Filter	Superseded Absolute Assembly
LFS 801	LFS 801BPE	ABS10300
LFS 802	LFS 802BPE	ABS10450









Ford/International 6.0L/6.4L Kit (ABSRK10360F shown above)

#### Bypass Kit Application Chart

Kit Number	Application	Year Model	Bypass Filter	Replacement Filters
ABSRK10359CEA <sup>1</sup>	Dodge/Cummins 5.9L	1993 to 2002		
ABSRK10359CEB <sup>2</sup>	Dodge/Cummins 5.9L	1994 to 2001		
ABSRK10359CL	Dodge/Cummins 5.9L 24 Valve Engine	1998 1/2 to Current	40010000	ABS20330 (3 micron),
ABSRK10366G	GM Duramax 6.6L	All Models	ABS10300 (ABS20330	or ABS20370 (5 micron),
ABSRK10360F	Ford 6.0L/6.4L	2003 to Current	3 micron included)	or ABS25350 (10 micron)
ABSRK10360FE	Ford Econoline Van 6.0L	2003 - Current		
ABSRK10373F	Ford 7.3L DI and IDI Engines	1987 to 2003		

<sup>1</sup> Comes with 18MM x 1.5 plug with 18"-27 NPT port.

<sup>2</sup> Comes with 22MM x 1.5 plug with 18"-27 NPT port.

## Remote Bypass Oil Filter Kits

The Absolute bypass oil filter kits come complete with UL rated Parker hose, adapters, and high quality Parker fittings for specific light-duty truck applications. The filter is designed as a top load filter but can be mounted at any angle using the supplied heavy-duty mounting bracket. Oil is taken from the engine by means of the Parker fittings and unique billet machined anodized components, which are included. The clean oil is returned to the crankcase by a billet machined anodized filler cap or drain plug adapter, which is supplied in each bypass kit specified below. The Absolute bypass kit includes a 3 micron filter installed in the housing. Racor also offers optional 5 micron (ABS20370) and 10 micron (ABS25350) replacement filters, available through your local distributor.

## Benefits of installing one of these kits include:

- Extended oil change intervals.
- Reduced maintenance cost.
- Reduced engine wear.
- Superior Absolute filtration.
- Rugged design.
- Will not void engine warranty.

See Brochure 7637 for more information.

# Racor Absolute Series **Unique Bypass Oil Cleaning System**





## High Volume

Specifications	ABS11200 ABS11300	
Housing Material	Stainless Steel Stainless Steel	
Application Capacity	100 qt (94.6 L)	150 qt (142.0 L)
Port Size	1/2" NPT	1/2" NPT
Working Pressure	73 PSI (5 bar)	73 PSI (5 bar)
Dimensions	W9.3 x D10.6 x H16.1 in.      W9.3 x D10.6 x H30.0 in.        (W210 x D269 x H620 mm)      (W236 x D269 x H762 mm)	
Replacement Filters	(use two)      (use three)        ABS20430 (3 micron),      ABS20430 (3 micron),        ABS20470 (5 micron),      ABS20470 (5 micron),        ABS25450 (10 micron)      ABS25450 (10 micron)	
Weight	22 lbs (10.0 kg) 28.7 lbs (13.0 kg)	
0-ring	ABS50057	





## High Volume

Specifications	ABS11400	ABS11410	ABS10515
Housing Material	Carbon Steel	Carbon Steel	Carbon Steel
Application Capacity	100 qt (94.6 L)	150 qt (142.0 L)	250 qt (236.6 L)
Port Size (inlet/outlet/drain)	1/2" NPTF	1/2" NPTF	1" NPTF
Working Pressure	73 PSI (5.0 bar)	73 PSI (5.0 bar)	73 PSI (5.0 bar)
Dimensions	W11.81 x H23.62 in. (W300 x H600 mm)	W11.81 x H29.25 in. (W300 x H743 mm)	W18.9 x H50.0 in. (W480 x H1270 mm)
Replacement Filters	(use two) ABS20430 (3 micron) ABS20470 (5 micron) ABS25450 (10 micron)	(use three) ABS20430 (3 micron) ABS20470 (5 micron) ABS25450 (10 micron)	(use five) ABS20520 (3 micron) ABS20510 (5 micron) ABS25512 (10 micron)
Weight	40 lbs (18.1 kg) 48.5 lbs (22 kg)		196 lbs (89 kg)
0-ring	ABS50082		ABS50058

See Brochures 7815 and 7974 for more information.

## Heavy and Medium Duty Systems

These high capacity filtration units are designed to efficiently and cost effectively clean large volumes of lubrication fluids. It combines Racor's unique depth loading filter for removal of wear particles, moisture, and sludge in large engine applications.

## Centri - MAX10



Dimensions	39.4L x 22.1W x 46.2H (in.) 100.1L x 56.1W x 117.3H (cm.)
Weight	551 lbs (250 kg)
60Hz Application: 1440 PS 1050 KW 1400 HP	79 GPH (300 LPH)
Filters Per Housing	1
Absolute Replacement Filters	ABS20430 (3 micron filter) ABS20470 (5 micron filter) ABS25450 (10 micron filter) ABS23024 (Catch Sheet-Centrifuge)

# Engine Lube Oil Filtration Stop, Contain, Reduce



### Racor SCR Protection = System Dependability

- **S** top. Dirt (Absolute Filtration)
- Contain. Contaminants (Moisture and Wear Particles)
- **R**educe. Wear (Engineered Media)









# Lube Oil Systems For Original Equipment Manufactures

## Full Flow Spin-on Oil Conditioning Modules

Racor lube oil systems are a combination of engineered media designed to provide the best performance, efficiency and dirt handling capacity, with the lowest pressure loss through the system. Racor's engineering doesn't stop with just a filter. The system design capability of Racor, combines performance with a modular concept, adds cost reduction, value, reliability to performance all into one package. With a Racor "system package" multiple components are trimmed down to one reliable source, Parker Racor.

## Multi-stage Full Flow Bypass Oil Conditioning System

Lube filtration undergoes continuous development at Racor. Objectives are two-fold. One to increase the cumulative efficiency and two, provide the highest dirt holding capacity obtainable while staying in the constraints of the package envelope. One way to accomplish this is by combining engineered cellulose or synthetic media along with a micro, depth loading bypass system. The result is a compact lube filtration system that meets the OE requirements for efficiency and dirt holding capacity.

## Full Flow Top-load Oil Conditioning Modules

A permanent assembly houses both the Racor top-load oil filter and top-load fuel filter. The topload filters meet the requirements of today's oil-controlled, high pressure fuel injection systems. Racor media meets the variable geometry and variable nozzle turbocharger requirements. An uncompromising, high level of fluid cleanliness is needed to achieve operating efficiency and reach service life. The environmentally-friendly cartridge oil filters are crushable, incinerable and cost-effective to replace. Filter service is from the top of the module and skin contact is minimal due to the unique screw top cap and oil element attachment. The permanent assembly is customized with a patented automatic drain that allows oil to drain back into the sump when the engine is turned off and the screw top cap is removed for service. This Racorengineered feature eliminates the waste oil that is left in a standard spin-on filter and thrown away during a filter change. The topload oil conditioning module is a prime example of valueadded Racor engineering that tailors a filtration system to a specific engine working in a broad range of environments. Development includes detailed analysis of the engine's filtration requirements, change intervals, available mounting space and a cost analysis of the entire program. Racor's investment in rapid prototype equipment provides fit-up assemblies to facilitate the development process.









#### System Packages

- Filter Element
- Oil Cooler
- Pressure Regulator
- Cooler Bypass
- Turbo Oil Supply



## Racor Top Load Oil Filter Modules

- The filter and screw top cap are a patented, combination design that minimizes skin contact during service. System patents ensure that equipment owners receive genuine OEM replacement filters.
- Top-loading filter replacement is user-friendly, cleaner, easier, and quicker than servicing under-engine mounted filters.
- Patented center tube filter design includes a bypass for engine protection. Because oil is supplied to the engine from the bypass in the top of the chamber, contaminants collecting at the bottom do not enter the engine.
- High performance, high efficiency engineered filter media.
- Environmentally-friendly, incinerable filter.
- Rugged, die cast aluminum housing.
- Automatic drain valve eliminates oil in the housing during service.
- Turbocharger Oil Supply.
- Oil pressure regulator can be integral to the system.
- Custom OEM mounting base.
- Ports for pressure and temperature sensors can be added for all-in-one engine management.
- Coolant connection is supplied in the module base.
- Fuel filtration media is specified based on the engine system requirements and service intervals.
- Fuel system pressure regulation and fuel return connection are included in the module.
- Integrated anti drain-back and oil cooler bypass.
- An efficient stacked plate cooler, designed into the module, ensures optimum engine oil operating temperature.

#### The System Advantage

Racor top-load fluid conditioning modules can be designed to include secondary fuel filtration, full-flow oil filtration, built-in performance monitoring sensors and controls, and fuel heaters. The module shown has an oil cooler incorporated into the assembly. Advanced filter media can be engineered to meet the most specific, the most stringent, and the most demanding applications, achieving optimum efficiency and capacity.

# Lube Oil Testing Capabilities

## SAE and ISO Standard Media Verification

**Efficiency:** Testing is per ISO 4548-12. Racor has developed a number of media that offer this level of efficiency by blending cellulose and polyester fibers, which enhance strength and durability. Synthetic or microglass fibers can be added for strength and efficiency.

**Capacity:** Testing for capacity is per SAE J806 using SOFTC-2A as a clogging contaminant. This more fairly represents what happens in a crankcase in terms of soot and oxidation products clogging the filter medium. Racor believes this to be a more realistic measure of ultimate field performance than using test dust as a contaminant.

## Reliability/Durability Testing Capabilities

- Multiple Axis Shake and Vibration: 3 Axis Uniaxial Electrodynamic Shaker
- Engine Dynamometer: 1,000 bhp
- Pressure/Pulse: Hydrostatic Pressure, Resistance and Pulse

#### Engine and Lube Oil Analysis

- Engine operation over the standard oil change interval typically produces an amount of inorganic material equaling 15-25% of the filters capacity. The remaining 75-85% is made up of organic products such as sludge. Sludge does effect wear on an engine many times over from clean oil.
- Oll provides lubrication, cools components, cleans and protects from rust and seals by filling irregularities in cylinder walls creating a better seal between the piston rings and cylinder wall.
- Soot is monitored because it increases the viscosity of oil. A 5% increase in soot can increase viscosity many times over.

## Oil is the life blood of an engine.

#### Engine Oil Analysis:

TBN-ASTM D189, Elemental Analysis 24 Base metals ASTM D5185, Oxidation/Nitration FTIR ASTM E2412, Pentane Ensoluables ASTM D896, Soot FTIR ASTM E2412, Viscosity ASTM D945, Water Crackle Polaris, Fuel Dilution Gas Chromatography.

Lube Oil Analysis provided all or in part by qualified laboratories



## Lube Oil Analysis and Monitoring Kits



#### What Oil Analysis Detects:

- Fuel dilution of lubrication oil
- Dirt contamination in the oil
- Antifreeze in the oil
- Excessive bearing wear
- Misapplication of lubricants
- Provides early warning of impending problems, preventing breakdowns, and allowing for corrective action
- Can be used to determine if the appropriate lubricatnts are being used.

#### LFS RK760: Lube Oil Analysis Kit

The lube oil analysis kit tests engine, transmission, and hydraulic oils. It comes with all containers and documentation required by the lab to fulfil a proper analysis.

- A sample is taken from the engine or transmission and placed in the supplied bottle.
- Fill out the included form and attach the label to the sample bottle.

- Return the sample to the lab in the provided container.
- The sample is tested with-in 24-48 hours of receipt and results are sent back to you by e-mail, fax, or password secure website.
- If sample indicates a critical or abnormal condition. The lab will contact you immediately.

Time Frame: 3-11 Days

## LFS RK761: OilCheck<sup>™</sup> Portable Oil Monitor

The oil monitor measures the effect of all the contaminants and the electro chemicals that occur in synthetic and petroleum based oils. This is achieved by detecting and measuring the oil's dielectric constant.

By comparing the measurements obtained from used and unused oils of the same make and grade, the oil monitor is able to determine the degree of change in the oil's dielectric constant. Dielectric change is directly related to the contamination level and degradation of the oil and may allow the user to achieve longer intervals between oil changes and immediately detect increased mechanical wear and coolant dilution, resulting in the loss of the oil's lubricating properties.

#### Time Frame: 5-10 Minutes

Fluid Types:

- Engine Oil
- Transmission Fluid
- Hydraulic Fluid

Oil analysis tells you a lot about how the equipment was used and what condition it's in. Oil that has been inside any moving mechanical apparatus for some time reflects the exact condition of that assembly. As moving parts make contact, wear occurs and introduces minute metal particles to the oil. These particles are so small that they remain in suspension. Many products of the combustion process also become trapped in the circulating oil. In addition, the oil may be exposed to external contamination.

Identifying and measuring these impurities indicates the rate of wear and level of contamination. Thus, the oil becomes a working history of the machine. Oil analysis also suggests methods to reduce accelerated wear and contamination.

> LFS RK761 OilCheck Portable Oil Monitor

# Lube Oil Engineered Filter Media

Just as replacement filters are the heart of a filtration system, so is media research and development. It is the heart of Racor engineering programs world-wide. Racor is renowned for its fuel filtration and patented Aquabloc® media. In oil, the development programs are equally ambitious and testing equally rigorous.

Racor's state-of-the-art laboratories provide the comprehensive test results needed to ensure that filtration systems meet performance specifications. Tests are conducted on ISO and SAE certified test equipment, including an electronically-monitored engine dynamometer to ensure accurate documentation of the results.

Racor engineering research is continuously focused on the latest technology in oil filter media development. Laboratory tests have proven up to 40% higher efficiency with Racor oil filter media versus competitive oil filters (ISO 4548-12 Test Procedure).







**S** top. **C** ontain. **R** educe.

## Synthetic Media

This innovative high efficiency media withstands higher temperatures while delivering extended service life.

## Cellulose Media

The engineered design of the Racor cellulose filter media provides for an environmentally clean and efficient oil filter.

## Absolute Cellulose Depth Loading Media

The filter design forces the oil to flow through 114 mm and 3 stages of media.



Racor offers multiple oil filter media options, including synthetic media, for specific engine operating requirements. Synthetic media increases the efficiency and durability of oil filters.

# Lube Oil and Transmission Application Guide and Filter Kits

**PF L2016** Racor Replacement Filter Cartridge For 6.0L and 6.4L Diesel Engines



#### Ford light duty trucks

Replaces Ford oil filters on 6.0L diesel engines (model years 2003-2010), IHC VT 365 diesel engine, and IHC school buses.

Baldwin	P7235
Fram	CH9549
Service Champ	CF5515
Security Filter	CH9549
K/N	HP-7009
Champion Lab	LP2017
Mobil 1	M05515
Premium Guard	PG5526
Pennzoil	PZ170
Quaker State	QS45522
Motorcraft	FL2016
Ford	3C3Z6721AA
International	1840752C91 1844588C91

Colins      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Coach & Equipment      Conventional      VT-365 Engine        Blue Bird      Conventional      VT-365 Engine        Eldorado Bus      Cut-Away Chassis (Micro Bird)      Ford 6.0L Turbo Diesel        Eldorado Bus      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Ford      Diesel      V8-6.0L Turbo Diesel (2004-2007)        Ford      F650      6.0L Turbo Diesel (2004-2007)        Ford      F650      Kontrob Diesel (2004-2007)        Ford      F650      Kontrob Diesel (2004-2007)        Ford Truck      F650      Kourston      V8-6.0L Turbo Diesel (2002-2003)        F550 (Super Duty)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel (2007-2010)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel (2007-2010)        Super Duty F      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel (2007-2010)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel (2007-2010)        Blaval Bus      Cut-Away	Applications	Туре	Engine	
Coach & Equipment      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Blue Bird      Conventional      VT-365 Engine        Cut-Away Chassis (Micro Bird)      Ford 6.0L Turbo Diesel        Cut-Away Chassis (Micro Bird)      Ford 6.0L Turbo Diesel        Ford      Diesel      VR-6.0L Turbo Diesel        Ford      Diesel      VR-6.0L Turbo Diesel (VR P)        Ford      F650      6.0L Turbo Diesel (2004-2007)        Ford      F650      6.0L Turbo Diesel (P) (2003-2005)        Ford      F150-450      VR-6.0L Turbo Diesel (P) (2003-2005)        F150-450      VR-6.0L Turbo Diesel (P) (2003-2005)      F150-350        F450 (Super Duty)      VR-6.0L Turbo Diesel (P) (2003-2007) or VR-6.4L Bi-Turbo Diesel (2007-2010)        F450 (Super Duty)      VR-6.0L Turbo Diesel (P) (2003-2007) or VR-6.4L Bi-Turbo Diesel (2007-2010)        Super Duty E      VR-6.0L Turbo Diesel (P) (2003-2007) or VR-6.4L Bi-Turbo Diesel (2007-2010)        Super Duty F      VR-6.0L Turbo Diesel (P) (2003-2007) or VR-6.4L Bi-Turbo Diesel (2007-2010)        Super Duty F      VR-6.0L Turbo Diesel (P) (2003-2007) or VR-6.4L Bi-Turbo Diesel (2007-2010)        Giardian      Cut-Away Chassis      Ford 6.0L Turbo Diesel (P) (2003-2007) or VR-6.4L Bi-Turbo Diesel (2007-2010) <td< th=""><th>Collins</th><th>Cut-Away Chassis</th><th colspan="2">Ford 6.0L Turbo Diesel</th></td<>	Collins	Cut-Away Chassis	Ford 6.0L Turbo Diesel	
Cut-Away Chassis      Ford 6.0L Turbo Diesel        Blue Bird      Conventional      VT-365 Engine        Eldorado Bus      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Ford      Diesel      VR-365 Engine        Ford      Diesel      VR-365 Engine        Ford      Diesel      VR-60.L Turbo Diesel (VIN P)        Ford      F650      6.0L Turbo Diesel (2004-2007)        Ford      F750      6.0L Turbo Diesel (P) (2004-2008)        Excursion      VR-60.L Turbo Diesel (P) (2003-2005)        Ford Truck      F150-450      VR-60.L Turbo Diesel (P) (2003-2007)        F150-350      VR-60.L Turbo Diesel (P) (2003-2007) or VR-6.4L Bi-Turbo Die	Occel 9 Environment	Conventional	VT-365 Engine	
Blue Bird      Cut-Away Chassis (Micro Bird)      Ford 6.0L Turbo Diesel        Eldorado Bus      Conventional      VT-365 Engine        Ford      Diesel      V8-6.0L Turbo Diesel (VIN P)        Ford      F650      6.0L Turbo Diesel (2004-2007)        Ford      F750      6.0L Turbo Diesel (P) [2004-2007]        Ford      F750      6.0L Turbo Diesel (P) [2004-2008]        E150-450      V8-6.0L Turbo Diesel (P) [2003-2005] or V8-6.0L Turbo Diesel (P) [2003-2005] or V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2010]        Ford Truck      F450 (Super Duty)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        F550 (Super Duty)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Super Duty F      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Giaval Bus      Cut-Away Chassis      Ford 6.0L Turbo Diesel [2007-2010]        Giaval Bus      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Glaval Bus      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Corporation (Bus)      VT-365 Engine      CE200 <t< th=""><th>Coach &amp; Equipment</th><th>Cut-Away Chassis</th><th colspan="2">Ford 6.0L Turbo Diesel</th></t<>	Coach & Equipment	Cut-Away Chassis	Ford 6.0L Turbo Diesel	
Cut-Away Chassis (Micro Bird)      Ford 6.0L Turbo Diesel        Eldorado Bus      Conventional      VT-365 Engine        Ford      Diesel      V3-6.0L Turbo Diesel (VIN P)        Ford      F650      6.0L Turbo Diesel (2004-2007)        Ford      F750      6.0L Turbo Diesel (2004-2007)        Ford      E150-450      V8-6.0L Turbo Diesel (P) [2003-2005]        Ford      F150-350      V8-6.0L Turbo Diesel (P) [2003-2005]        Ford Truck      F150-350      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2017)        Ford Truck      F550 (Super Duty)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Ford Truck      F550 (Super Duty)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Guerr Duty E      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Super Duty E      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Guerr Duty F      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Guerr Duty F      V8-6.0L Turbo Diesel [2007-2010]        Guerr Duty F      V8-6.0L Turbo Diesel [2007-2010]        Guerr Duty F      V8-6.0L Turbo Diesel [2007-2010]	Plue Pird	Conventional	VT-365 Engine	
Eldorado BusCut-Away ChassisFord 6.0.L Turbo DieselFordDieselV8-6.0.L Turbo Diesel (VIN P)FordF6506.0.L Turbo Diesel (2004-2007)FordF7506.0.L Turbo Diesel (2004-2007)EL150-450V8-6.0.L Turbo Diesel (P) [2003-2005]ExcursionV8-6.0.L Turbo Diesel (P) [2003-2005]F150-350V8-6.0.L Turbo Diesel (P) [2003-2007) or V8-6.4.L Bi-Turbo Diesel (P) [2003-2007) or V8-6.4.L Bi-Turbo Diesel [2017]Ford TruckF450 (Super Duty)V8-6.0.L Turbo Diesel (P) [2003-2007) or V8-6.4.L Bi-Turbo Diesel [2007-2010]Super Duty EV8-6.0.L Turbo Diesel (P) [2003-2007] or V8-6.4.L Bi-Turbo Diesel [2007-2010]Super Duty FV8-6.0.L Turbo Diesel (P) [2003-2007] or V8-6.4.L Bi-Turbo Diesel (P)	Diue Diiu	Cut-Away Chassis (Micro Bird)	Ford 6.0L Turbo Diesel	
FordCut-Away ChassisFord 6.0.L Turbo DieselFordDieselV8-6.0.L Turbo Diesel [2004-2007]FordF6506.0.L Turbo Diesel [2004-2007]FordF7506.0.L Turbo Diesel [2004-2007]LandschartE150-450V8-6.0.L Turbo Diesel [2003-2005]ExcursionV8-6.0.L Turbo Diesel (P) [2003-2005] or V8-6.0.L Turbo Diesel (P) [2003-2005] or V8-6.0.L Turbo Diesel (P) [2003-2007] or V8-6.0.L Turbo Diesel [2017-2010]Ford TruckF450 (Super Duty)V8-6.0.L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]F550 (Super Duty)V8-6.0.L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty EV8-6.0.L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisFord 6.0.L Turbo Diesel [2007-2010]GirardianCut-Away ChassisFord 6.0.L Turbo Diesel [2007-2010]Goshen CoachCut-Away ChassisFord 6.0.L Turbo Diesel [2007-2010]CorventionalVT-365 EngineCorventional School BusVT-365 EngineCe200VT-365 EngineCe200VT-365 EngineRE Paer Engine Convertional School BusVT-365 EngineRE Rear Engine Convertional School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine32001MVT-365 Engine32001MVT-365 Engine3	Eldorado Rue	Conventional	VT-365 Engine	
Ford      F650      6.0L Turbo Diesel [2004-2007]        F750      6.0L Turbo Diesel [2004-2007]        E150-450      V8-6.0L Turbo Diesel (P) [2003-2005]        Ford Truck      E150-350      V8-6.0L Turbo Diesel (P) [2003-2005] or V8-6.4L Bi-Turbo Diesel [2010]        F450 (Super Duty)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2017]        F550 (Super Duty)      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Super Duty E      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Super Duty E      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Super Duty E      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Super Duty F      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Super Duty F      V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]        Garatian      Cut-Away Chassis      Ford 6.0L Turbo Diesel [2007-2010]        Goshen Coach      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Goshen Coach      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Goshen Coach      Cut-Away Chassis      Ford 6.0L Turbo Diesel        Goshen Coach      Cut-Away Chassis      Fo		Cut-Away Chassis	Ford 6.0L Turbo Diesel	
FordF7506.0L Turbo Diesel [2004-2007]E150-450V8-6.0L Turbo Diesel (P) [2003-2005]ExcursionV8-6.0L Turbo Diesel (P) [2003-2005] or V8-6.4L Bi-Turbo Diesel [2010]F150-350V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2017]F450 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]F550 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty EV8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty FV8-6.0L Turbo Diesel [2007-2010]Super Duty FV8-6.0L Turbo Diesel [2007-2010]GardianCut-Away ChassisConventionalVT-365 EngineGoshen CoachCut-Away ChassisCorporation (Bus)BE200 Conventional School BusFR Rear Engine Comercial VehiclesVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE Rear Engine School BusVT-365 EngineRE 300 Rear Engine School BusVT-365 EngineRE 300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3200VT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 Engine100VT-365 Engine3300 Bus ChassisVT-365 Engine3300 Bus ChassisVT-365 Engine3300 Bus ChassisVT-365 Engine	Ford	Diesel	V8-6.0L Turbo Diesel (YIN P)	
F7506.0L Turbo Diesel [2004-2007]F150-450V8-6.0L Turbo Diesel (P) [2003-2005]ExcursionV8-6.0L Turbo Diesel (P) [2003-2005]F150-350V8-6.0L Turbo Diesel (P) [2003-2005] or V8-6.4L Bi-Turbo Diesel [2010]F450 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]F450 (Super Duty)V8-6.0L Turbo Diesel [2007-2010]F550 (Super Duty)V8-6.0L Turbo Diesel [2007-2010]Super Duty EV8-6.0L Turbo Diesel [2007-2010]Super Duty FV8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty FV8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisConventionalVT-365 EngineGoshen CoachConventionalConventionalVT-365 EngineCat-Away ChassisFord 6.0L Turbo DieselBE200 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE Rear Engine School BusVT-365 EngineRE 200VT-365 EngineRE 200VT-365 EngineRE 200VT-365 Engine3200VT-365 Engine3200VT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 EngineInternational4100VT-365 Engine7-365 Engine	Ford	F650	6.0L Turbo Diesel [2004-2007]	
Ford TruckExcursionV8-6.0L Turbo Diesel (P) [2003-2005] or V8-6.0L Turbo Diesel (P) [2003-2005] or V8-6.4L Bi-Turbo Diesel [2010]Ford TruckF450 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisFord 6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisFord 6.0L Turbo Diesel [2007-2010]Goshen CoachCut-Away ChassisFord 6.0L Turbo DieselConventionalVT-365 EngineGoshen CoachCE200VT-365 EngineCE200VT-365 EngineCE200VT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE200VT-365 EngineRE200VT-365 EngineRE200VT-365 Engine32001MVT-365 Engine32001MVT-365 EngineInternational4100VT-365 Engine	roiu	F750	6.0L Turbo Diesel [2004-2007]	
Ford TruckF150-350V8-6.0L Turbo Diesel (P) [2003-2005] or V8-6.4L Bi-Turbo Diesel [2010]F450 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]F550 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty EV8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty FV8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisGoshen CoachCut-Away ChassisConventionalVT-365 EngineGoshen CoachCut-Away ChassisCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE Rear Engine School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 EngineInternational4100VT-365 Engine or MaxxForce 7 Engine		E150-450	V8-6.0L Turbo Diesel (P) [2004-2008]	
Ford TruckF150-350V8-6.4L Bi-Turbo Diesel [2010]F450 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel (2007-2010]F550 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel (2007-2010]GirardianCut-Away ChassisFord 6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel (2007-2010]Goshen CoachCut-Away ChassisFord 6.0L Turbo DieselGoshen CoachCut-Away ChassisFord 6.0L Turbo DieselCut-Away ChassisFord 6.0L Turbo DieselBE200 Conventional School BusVT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE300 Rear Engine School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 EngineInternational4100VT-365 Engine		Excursion	V8-6.0L Turbo Diesel (P) [2003-2005]	
Ford TruckP430 (Super Duty)V8-6.4L Bi-Turbo Diese [2007-2010]F550 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty EV8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty FV8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisGoshen CoachCut-Away ChassisConventionalVT-365 EngineGoshen CoachCut-Away ChassisFord 6.0L Turbo DieselBE200 Conventional School BusVT-365 EngineCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE Rear Engine School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 EngineInternationalVT-365 Engine4100VT-365 Engine		F150-350		
F550 (Super Duty)V8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty EV8-6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisFord 6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisFord 6.0L Turbo Diesel (P) [2003-2007] or V8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisFord 6.0L Turbo Diesel [2007-2010]Goshen CoachCut-Away ChassisFord 6.0L Turbo DieselGoshen CoachCut-Away ChassisFord 6.0L Turbo DieselBE200 ConventionalVT-365 EngineCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 EngineInternationalVT-365 EngineAt 100VT-365 Engine or MaxxForce 7 Engine	Ford Truck	F450 (Super Duty)		
Super Duty EV8-6.4L Bi-Turbo Diesel [2007-2010]Super Duty FV8-6.0L Turbo Diesel [2007-2010]GirardianCut-Away ChassisGlaval BusCut-Away ChassisConventionalVT-365 EngineConventionalVT-365 EngineCut-Away ChassisFord 6.0L Turbo DieselBE200 Conventional School BusVT-365 EngineCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE300 Rear Engine School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 EngineInternational4100VT-365 Engine or MaxForce 7 Engine		F550 (Super Duty)		
Super Duty PV8-6.4L Bi-Turbo Diesel [2007-2010]GirardianCut-Away ChassisFord 6.0L Turbo DieselGlaval BusCut-Away ChassisFord 6.0L Turbo DieselConventionalVT-365 EngineConventionalVT-365 EngineCut-Away ChassisFord 6.0L Turbo DieselBE200 Conventional School BusVT-365 EngineCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE 200VT-365 EngineRE300 Rear Engine School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200 VT-365 Engine3200IMInternationalVT-365 EngineAt 100VT-365 Engine		Super Duty E		
Glaval BusCut-Away ChassisFord 6.0L Turbo DieselGoshen CoachConventionalVT-365 EngineCut-Away ChassisFord 6.0L Turbo DieselCut-Away ChassisFord 6.0L Turbo DieselBE200 Conventional School BusVT-365 EngineCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE300 Rear Engine School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 EngineInternational4100VT-365 Engine or MaxxForce 7 Engine		Super Duty F		
Goshen CoachConventionalVT-365 EngineCut-Away ChassisFord 6.0L Turbo DieselBE200 Conventional School BusVT-365 EngineCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE200VT-365 EngineRE300 Rear Engine School BusVT-365 Engine1652SCVT-365 Engine3200IMVT-365 Engine3300 Bus ChassisVT-365 Engine4100VT-365 Engine or MaxxForce 7 Engine	Girardian	Cut-Away Chassis	Ford 6.0L Turbo Diesel	
Goshen CoachCut-Away ChassisFord 6.0L Turbo DieselIC Corporation (Bus)BE200 Conventional School BusVT-365 EngineCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE300 Rear Engine School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3200 VT-365 Engine3200 VT-365 Engine3300 Bus ChassisVT-365 Engine4100VT-365 Engine or MaxxForce 7 Engine	Glaval Bus	Cut-Away Chassis	Ford 6.0L Turbo Diesel	
Cut-Away ChassisFord 6.0L Turbo DieselBE200 Conventional School BusVT-365 EngineCE200VT-365 EngineCE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE200VT-365 EngineRE300 Rear Engine School BusVT-365 EngineRE300 Rear Engine School BusVT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 EngineInternational4100VT-365 Engine or MaxxForce 7 Engine	Goshen Coach	Conventional	VT-365 Engine	
IC Corporation (Bus)CE200VT-365 EngineIC Corporation (Bus)CE300 Conventional School BusVT-365 EngineRE Rear Engine Comercial VehiclesVT-365 EngineRE200VT-365 EngineRE300 Rear Engine School BusVT-365 Engine1652SCVT-365 Engine3200VT-365 Engine3200VT-365 Engine3300 Bus ChassisVT-365 Engine4100VT-365 Engine or MaxxForce 7 Engine		Cut-Away Chassis	Ford 6.0L Turbo Diesel	
IC Corporation (Bus)      CE300 Conventional School Bus      VT-365 Engine        RE Rear Engine Comercial Vehicles      VT-365 Engine        RE200      VT-365 Engine        RE300 Rear Engine School Bus      VT-365 Engine        International      3200        VT-365 Engine      3300 Bus Chassis        VT-365 Engine      4100		BE200 Conventional School Bus	VT-365 Engine	
IC Corporation (Bus)      RE Rear Engine Comercial Vehicles      VT-365 Engine        RE 200      VT-365 Engine        RE300 Rear Engine School Bus      VT-365 Engine        1652SC      VT-365 Engine        3200      VT-365 Engine        3200      VT-365 Engine        3300 Bus Chassis      VT-365 Engine        3300 Bus Chassis      VT-365 Engine        4100      VT-365 Engine or MaxxForce 7 Engine		CE200	VT-365 Engine	
RE Rear Engine Comercial Vehicles      VT-365 Engine        RE200      VT-365 Engine        RE300 Rear Engine School Bus      VT-365 Engine        1652SC      VT-365 Engine        3200      VT-365 Engine        3200      VT-365 Engine        3200IM      VT-365 Engine        3300 Bus Chassis      VT-365 Engine        4100      VT-365 Engine or MaxxForce 7 Engine	IC Corporation (Bus)		VT-365 Engine	
RE300 Rear Engine School Bus      VT-365 Engine        1652SC      VT-365 Engine        3200      VT-365 Engine        3200IM      VT-365 Engine        3300 Bus Chassis      VT-365 Engine        4100      VT-365 Engine or MaxxForce 7 Engine			VT-365 Engine	
1652SC      VT-365 Engine        3200      VT-365 Engine        3200IM      VT-365 Engine        3300 Bus Chassis      VT-365 Engine        4100      VT-365 Engine or MaxxForce 7 Engine			<u> </u>	
3200      VT-365 Engine        3200IM      VT-365 Engine        3200IM      VT-365 Engine        3300 Bus Chassis      VT-365 Engine        4100      VT-365 Engine or MaxxForce 7 Engine		<u> </u>	•	
3200IM      VT-365 Engine        3300 Bus Chassis      VT-365 Engine        International      4100      VT-365 Engine or MaxxForce 7 Engine			·	
3300 Bus Chassis      VT-365 Engine        International      4100      VT-365 Engine or MaxxForce 7 Engine	-			
International 4100 VT-365 Engine or MaxxForce 7 Engine	-			
	late wetter at		•	
4200 VI-230 Engine or VI-365 Engine	International		· · ·	
MXT VT 205 Engine	-			
			VT-365 Engine	
	-		VT-365 Engine	
International Harvester Diesel VT-365 Engine	International Harvester	4400 VT 365-Engine		
Conventional VT-365 Engine				
Krystal Bus      Cut-Away Chassis      Ford 6.0L Turbo Diesel	Krystal Bus			
MID Bus Cut-Away Chassis Ford 6.0L Turbo Diesel	MID Bus	· · · · · · · · · · · · · · · · · · ·		
Conventional VT-365 Engine		,		
Startrans Bus Cut-Away Chassis Ford 6.0L Turbo Diesel	Startrans Bus			
Thomas Bus      Cut-Away Chassis      Ford 6.0L Turbo Diesel	Thomas Bus			
Turtle Top Bus      Cut-Away Chassis      Ford 6.0L Turbo Diesel				



## Automatic Transmission Filter Kit

- Extend Transmission Life
- Extend Service Intervals
- Reduce Maintenance Costs

#### Overview

- The Racor LFS 22825 automatic transmission filter kit includes the hardware, fittings, and mounting bracket for a simple installation.
- The spin-on filter is manufactured with synthetic media specifically designed for transmission fluid use.
- Simply cut the steel tube going to the transmission cooler and slip on the Parker Flareless tube fittings and tighten.



## Kit Includes

- Heavy-duty 1/4" steel plated pre-drilled black powder-coated mounting bracket
- Aluminum mounting head, powdercoated gloss black with four 3/8" NPT ports
- High efficiency 6 micron micro-glass filter
- Parker JIC and Ferulok flareless fittings
- Bolts, nuts, and washers

Part Number	Description
LFS 22825	Automatic Transmission Filter Kit
Replacement Filter	Micron
LFS TF1006RE	6

## LFS 22821-01 Hose Kit For Racor Transmission Filter Kit





### Kit Includes

Includes one 30" long Hose per kit. Hose assembly has 9/16"-18 UNF, 90° swivel on one end, and 3/8" straight end on the other.

\*\*\* 2 Hose Assemblies shown

Two hose assemblies are required for installation.	
Hose	Part Number
3/8"	LFS 22821-01

See Brochure 7557 for more information.

# Hydraulic Filtration Water Absorbing and Fluid Transfer\_



## Water-Absorbing Hydraulic Filters

Racor water-absorbing hydraulic filters feature a specially designed media that traps not only solid contaminants like dirt and rust, but damaging water as well. As the filter fills with water and plugging occurs, flow is restricted and the head goes into bypass mode. Water-absorbing spin-on hydraulic filters are available for virtually any application and are available in a 10 micron rating. To make monitoring easy, Racor offers a range of heads with pressure restriction gauges, including large diameter heads with standard, color coded bar gauges.

## **Reservoir Breather Filters**



Specifications	PFHW57RB	PFH5526
Micron	10	10
Center Thread	1 1/2"-16 UNF	1 1/2"-16 UNF
Diameter	5.0 in. (12.7 cm)	3.7 in. (9.4 cm)
Length	7 in. (17.8 cm)	5.3 in. (13.5 cm)

## Par Fit<sup>™</sup> Hydraulic Filters





Specifications	PFHW5710	PFHW5725	PFHW51110
Flow rate	50 GPM (189 LPM)	50 GPM (189 LPM)	50 GPM (189 LPM)
Micron	10	25	10
Solids Capacity	1.0 oz. (27.6 g)	1.1 oz. (31.4 g)	1.7 oz. (49.6 g)
Center Threads	1 1/2"-16	1 1/2"-16	1 1/2"-16
Dimensions	5.0" D x 7.0" L	5.0" D x 7.0" L	5.0" D x 11.0" L
Pressure	100 PSI (6.9 bar)	100 PSI (6.9 bar)	100 PSI (6.9 bar)

See chart below for mounting head information.

## Mounting Heads









PFHH07500	PFHH12515	MP	PFHH12525L	_ PF	HH12525R
Part Number	Flow Rate	Port Size	Center Thread	By-pass Setting (PSID)	Replacement Filter
PFHH07500	15 GPM (56 LPM)	3/4" NPTF	1"-12 UNF	3	
PFHH07515	15 GPM (56 LPM)	3/4" NPTF	1"-12 UNF	15	PFHC3510 PFHC3525
PFHH07525	15 GPM (56 LPM)	3/4" NPTF	1"-12 UNF	25	
PFHH12515MP <sup>1</sup>	50 GPM (189 LPM)	1 1/4" NPTF	1 1/2"-16 UNC	15	PFHW51110 PFHW5710
PFHH12525MP <sup>1</sup>	50 GPM (189 LPM)	1 1/4" NPTF	1 1/2"-16 UNC	25	PFHW5710 PFHW5725
PFHH12525L <sup>2</sup>	50 GPM (189 LPM)	1 1/4" NPTF	1 1/2"-16 UNC	25	PFHW51110 PFHW5710
PFHH12525R <sup>2</sup>	50 GPM (189 LPM)	1 1/4" NPTF	1 1/2"-16 UNC	25	PFHW5710 PFHW5725

<sup>1</sup>MP (multi port head). <sup>2</sup>L = Gauge on left and R = Gauge on right.



The Racor Hydraulic filter cart is a ideal way to prefilter, transfer, or clean up hydraulic fluids.

Fluid should always be filtered before being put into use. New fluid is not necessarily clean fluid. Most new fluids (right out of the drum) may be unfit for use due to high initial contamination levels. Contamination, both particulate and water, may have accumilated during processing, mixing, handling and storage.

Additionally, this product can be utilized to condition existing oils within a reservoir.

The Racor Hydraulic filter cart uses two high capacity ModuFlow<sup>™</sup> Plus filters for long element life and better system protection. The first stage (inlet) filter captures larger particles, while the second stage (outlet) filter controls finer particles or removes water. A rugged industrial quality gear pump gets the job done fast.

Using a Parker portable filter cart is the most economical way to protect your system from the harm that can be caused by contamination.

## Applications

- Filtering new fluid before putting into service
- Transferring fluid from drums or storage tanks to system reservoirs
- Conditioning fluid that is already in use
- Complimenting existing system filtration
- Removing free water from a system
- For use with fluids such as hydraulic, gear, and lube oils

Specifications	10MFP240SA10QBVPI1
Fluid Filtered	Petroleum based fluids such as hydraulic, gear, and lube oils
Recommended Fluid Viscosity	10MFP500 SUS (108 cSt) 0.85 specific gravity
Filter Bypass Valve Settings: Inlet Outlet	3 psid (0.2 bar) 35 psid (2.4 bar)
Maximum Flow Rate	10 GPM (37 LPM)
Maximum Pressure	25 PSI (1.7 bar)
Height	40.5 in. (102.9 cm)
Width	25.5 in. (64.8 cm)
Depth	19.0 in. (48.3 cm)
Weight (approx.)	110 lbs (49.9 kg)
Max Operating Temperature Using Buna Nitrile Seals <sup>1</sup>	-40° to +225° F (-40° to +107° C)
Max Operating Temperature Using Viton Seals <sup>2</sup>	-20° to +300° F (-29° to +148° C)

<sup>1</sup> Using Buna Nitrile Seals. <sup>2</sup> Viton<sup>™</sup> is a registered trademark of Dupont<sup>®</sup>.

## **Replacement Elements**

Part Number	Description
940802	Synthetic 40 micron filter element (inlet side)
937399Q	Micronglass III 10 micron filter element (outlet side)



Many manufacturers of hydraulic components have established fluid cleanliness levels for their components. Using a portable filter cart can be a very effective way to reach and maintain these cleanliness levels.

Save time and money by using the Racor filter cart, and ensure that your fluid is clean and dry. The lightweight portable design allows for easy one person operation.

## **Product Features**

- Lightweight and portable
- Eleven foot hose and wand assemblies included
- Pump protection and long
  element life
- · No additional hardware necessary
- Removes dirt and water from system with one process
- One person operations



# Engine Lube Oil Capabilities



# Racor is the Leading Global Supplier of Fuel, Oil, Air, and CCV Filtration

#### System Innovation:

- A new generation of engineered lube filters to meet the requirements of today's oil-controlled components, such as injectors and turbochargers.
- Racor media provides the uncompromising, high level of fluid cleanliness needed to achieve operating efficiency and reach service life.
- Environmentally-friendly cartridge oil filters are crushable, incinerable and cost-effective to replace.

#### **Application Solutions:**

• The top-load oil conditioning module is a prime example of value-added Racor engineering that tailors a filtration system to a specific application.

#### **Proactive to Industry Changes:**

- New emissions Standards.
- New engine requirements.
- Multiple applications for engine platforms.
- Voice of the customer.

#### **Next Generation Supplier:**

• Racor takes pride in providing oil filtration solutions that save our customer maintenance cost and downtime. Over 40 years of listening to the voice of the customer has earned Racor the position as a trusted partner.

#### **Quality First Construction:**

- Cartridge and Spin-on.
- Multiple functions in one module.
- Engineered cellulose and synthetic media.
- Meets or exceeds OE specifications.
- Detailed attention to produce superior strength to protect from pressure fatigue.



Why trust your investment to anything else?

## **Parker Filtration's Products and Systems**



#### **AEROSPACE**

#### **Key Products**

- Filter Vessels (API/IP)
- Fluid Conditioning Monitors (Fuel & Hydraulic)
- Fuel Filter/Water Separators Fuel Inerting Systems (OBIGGS)
- Fuel Loading Filters (API/IP) · Fuel, Hydraulic, &
  - Lubrication Filters
- Nitrogen Tire Inflation Systems



#### **FOOD & BEVERAGE Key Products**

- Carbon Dioxide Purifiers
- Compressed Air Dryers
- Fiber & Membrane Filters

• Steam & Sterile Air Filters

Validation Test Equipment

Housings

Water Chillers

• Water Filters

- Nitrogen Generators
- Condensate Management Stainless Steel Filter
  - Contamination Monitoring Desiccant Drvers

**INDUSTRIAL &** 

**Key Products** 

Membrane Filters & Dryers ٠

PLANT EQUIPMENT

ASME Coded Vessels

Compressed Air Filters

- Refrigerated Dryers
- Hydraulic Filters
- **Oil/Water Separators** •
- Process Filters
- Portable Hydraulic Systems



#### **LIFE SCIENCES Key Products**

- Breathing Air Filters & Systems
- Chillers
- Compressed Air Filters
- Filter Integrity Analyzers
- Gas Sterilization Filters
- High Purity Gas Filters
- Hydrogen Gas Generators
- Nitrogen TriGas Systems
- Sterile Water Filters
- Syringe Filters

MARINE **Key Products** Air Intake Filters

- ASME High Flow Vessels Crankcase Emission Filter
- Systems Fuel Dispensing Filters
- Engine Fuel Filter/Water
- Separators · Engine Oil & Coolant Filters
- Gasoline Filters
- Hydraulic Filters

WATER

**Key Products** 

Systems

Vessels

ENGINEERING YOUR SUCCESS.

19

Desalination & Purification

Oil Absorption Filters

· Oil/Water Separators

Sterile Water Filters

Pleated Filter Cartridges

Stainless Steel Prefiltration

- Hydrocarbon Fluid Filters Oil/Water Separators
- Submarine CO, Reduction Units
- Water Desalination & Purification Systems



#### **OIL & GAS Key Products**

- · Air Intake Filters
- ASME High Flow Vessels
- · Compressed Air Filters & Dryers
- Compressed Air Water Separators
- · Crankcase Emission Filter Systems
- · Engine Fuel Filter/Water Separators
- · Engine Oil & Coolant Filters • Fluid Condition Monitoring
- Systems
- Fuel Dispensing Filters
- Hvdraulic Filters
- Hydrocarbon Fluid Filters
- Integrity Test Equipment • Nitrogen Generators
- · Mechanical Separators
- Membrane & Sterile Air
- Filters
- Oil/Water Separators

**Parke** 



#### POWER GENERATION

- **Key Products**
- · Air Intake Filters
- ASME High Flow Vessels
- Bioenergy Water Chillers Crankcase Emission Filter
- Systems • Engine Fuel Filter/Water
- Separators • Fluid Condition Monitoring
- Systems · Fuel Dispensing Filters
- Load Tap Filters
- Hydrogen Generators
- Magnetic Prefilters
- Nitrogen Generators
  - · Portable Hydraulic Systems
  - Water Sensors



#### **PROCESS Key Products**

- Alternative Gas Dryers & Absorbers
- Bag Filters
- Compressed Air Dryers
- Instrumentation Filters
- Nitrogen Generators .
- Oil Absorption Filters
- Pleated Filter Cartridges
- Process Filters • Semiconductor Filter
- Cartridges
- Stainless Steel Prefiltration Vessels
- Zero Air Generators



#### **TRANSPORTATION & MOBILE EQUIPMENT**

**Key Products** 

- Air Intake Filters
- Alternative Fuel Filters

Fuel Delivery Systems

• Fuel Dispensing Filters

Nitrogen Tire Inflation

Suction & Return Line

• Truck & Railway Dryers

Hydraulic Filters

Transmission Filters

• Fuel Filter/Water Separators

Multi-stage Filter Systems

High Pressure Natural Gas

- · ASME High Flow Vessels
- Crankcase Emission Systems

Filters

Systems

## Worldwide Filtration Manufacturing Locations

#### **North America**

Compressed Air Treatment Filtration & Separation/Balston Haverhill, MA 978 858 0505 www.parker.com/balston

Filtration & Separation/Finite Oxford, MI 248 628 6400 www.parker.com/finitefilter

Purification, Dehydration & Filtration Division Lancaster, NY 716 685 4040 www.parker.com/pdf

#### Sales Office Charlotte, NC 704 921 9303

/04 921 9303 www.parker.com/pdf

#### Engine Filtration & Water Purification Racor Modesto, CA

209 521 7860 www.parker.com/racor

Racor Holly Springs, MS 662 252 2656 www.parker.com/racor

#### Racor Beaufort, SC 843 846 3200 www.parker.com/racor

Racor – Village Marine Tec. Gardena, CA 310 516 9911 desalination.parker.com

#### Hydraulic Filtration

Hydraulic Filter Metamora, OH 419 644 4311 www.parker.com/hydraulicfilter

Process Filtration Process Advanced Filtration Oxnard, CA 805 604 3400 www.parker.com/processfiltration

#### **Europe**

**Compressed Air Treatment** domnick hunter Industrial England NE +44 (0) 191 402 9000, www.domnickhunter.com

Hiross Zander Padova Business Unit Angelo di Piove Padova, Italy +39 049 9712 111 www.parker.com/hzd

Hiross Zander Essen Business Unit Essen, Germany T +49 2054 9340, F +49 2054 934164 www.parker.com/hzd

Parker Gas Separations Etten- Leur, Netherlands +31 76 508 5300

#### Engine Filtration & Water Purification Racor

England +44 (0) 1924 487000, www.parker.com/rfde

Racor Research & Development Stuttgart Germany +49 (0)711 7071 290-0 www.parker.com/racor

#### Hydraulic Filtration Hydraulic Filter

Arnhem, Holland +31 26 3760376 www.parker.com/eurofilt

Urjala Operation Urjala as Finland

Urjala as Finland +358 20 753 2500 www.parker.com/fi

Condition Monitoring Center Norfolk IP 24 1HP England +44 1842 763299 www.parker.com/cmc

#### **Process Filtration**

domnick hunter Process DH3 2SF England T +44 (0) 191 410 5121 www.domnickhunter.com

#### Asia Pacific

Australia NSW 2154, Australia +61 2 9634 777 www.parker.com/australia

#### China

Shanghai 101206 China +86 21 5031 2525 www.parker.com/china

#### India

Mahape, Navi Mumbai 400 709 India T +91 22 5613 7081, 82, 83, 84, 85 www. parker.com/india

Japan Yokohama-shi, 244-0003 Japan T +81 45 870 1522 www.parker.com/japan

**Korea** Hwaseong-City Gyeonggi-Do, Korea T +82 31 359 0771 www.parker.com/korea

Singapore Singapore 619 702 T +65 6887 6300 www.parker.com/singapore

Thailand Bangkok 10250 Thailand T +66 (0)2 186 7024 www.parker.com/thailand

#### **Latin America**

Parker Comercio Ltda. Filtration Division Sao Jose dos Campos CEP 12225-390 SP Brazil +55 12 4009 3500 www.parker.com/br

Pan American Division - Miami Miami, FL 305 470 8800 www.parker.com/panam

#### Africa

Aeroport Kempton Park, 1620 South Africa +27 11 9610700 www.parker.com/eu

© 2011 Parker Hannifin Corporation. Product names are trademarks or registered trademarks of their respective companies.

Brochure 7460 Rev G 9/11

Parker Hannifin Corporation **Filtration Group Global Headquarters** 6035 Parkland Boulevard Cleveland, OH 44124-4141 phone 216 896 3000 fax 216 896 4021 www.parker.com/racor

