

Cat® Filters...Engineered protection for every application

- Genuine parts optimized for Cat Equipment.
- Manufactured worldwide to Caterpillar specifications for global quality assurance.
- Complete line of products and services to meet your business needs.



Cat Standard Efficiency Fluid Filters — Engine Oil



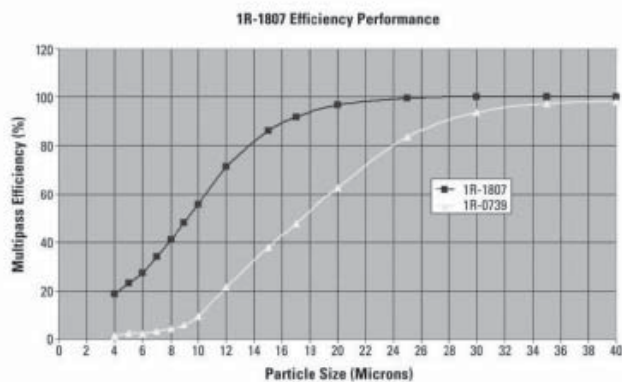
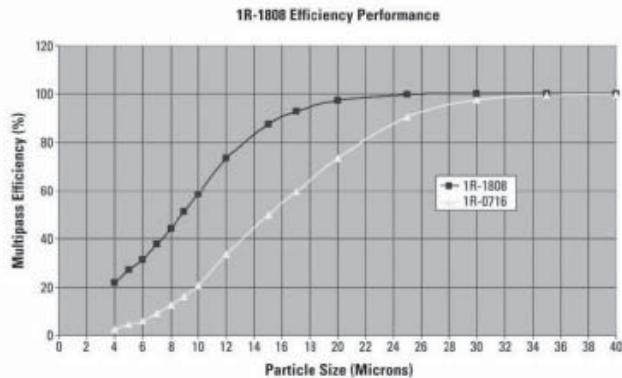
- Features standard elements for normal duty filtration.
- Designed to maintain system cleanliness.
- Removes contaminants before the lube oil reaches critical components.
- Available for all Cat equipment models.

Cat Advanced Efficiency Fluid Filters — Engine Oil

Cat Advanced Efficiency Engine Oil Filters provide increased contamination control over Standard Efficiency Filters, without requiring a shortened change interval. And, they are more economically priced than Ultra High Efficiency filters.

STANDARD EFFICIENCY	ADVANCED EFFICIENCY
1R-0739	1R-1807
1R-0716	1R-1808

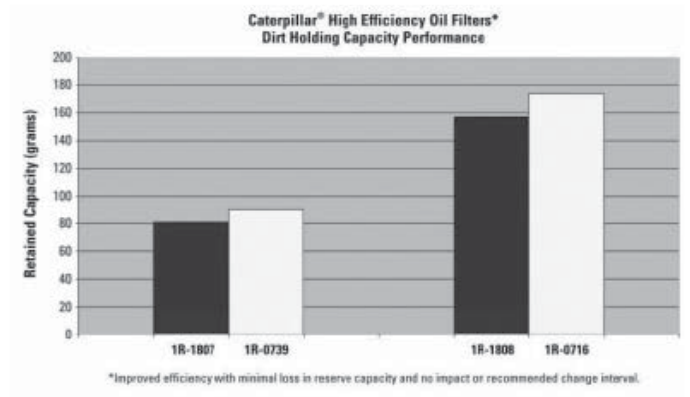
Improved Filtering Media



Cat Advanced Efficiency Oil Filters contain an improved filtering media which captures more contaminants, reducing wear on critical oil-lubricated engine components. This results in extended life and improved performance. The graphs below illustrate the efficiency of the 1R-1807 and 1R-1808 filters as compared to their Standard Efficiency Counterparts.

Reserve dirt-holding capacity

Although higher-efficiency filters accumulate dirt more quickly than Standard Efficiency filters, Cat Advanced Efficiency Engine Oil filters do not require a shortened change interval. They feature a reserve dirt-holding capacity, which compensates for the majority of dirt accumulation increase, letting customers maintain standard oil change intervals. The relative dirt-holding capacity of Advanced and Standard Efficiency filters are illustrated in the graph.



Cat Standard Efficiency Fluid Filter — Fuel

- Features standard elements for normal duty filtration.
- Designed to maintain system cleanliness.
- Removes contaminants before the lube oil reaches critical components.
- Available for all Cat equipment models.

Cat Advanced High Efficiency Fluid Filter — Fuel



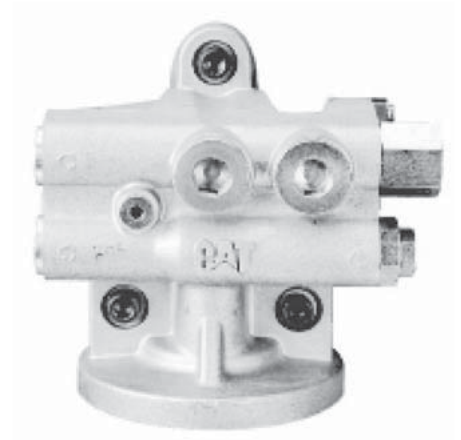
- Engineered for maximum protection, performance and fuel economy.
- Removes more contaminants, maximizing protection of injectors, pumps and other critical engine components.
- Best choice to meet today's fuel contamination challenges, especially in applications with dirty fuel.
- Engineered for today's diesel engines with higher injection pressures and closer tolerances.
- High efficiency cellulose/synthetic blend filtration removes more than 98% of particles 4 microns or larger.

TECHNOLOGY FEATURES	BENEFITS	RESULTS
Self-lubricating, free-rotating seal	Prevents bunching, eliminates leaks	Prevents contamination for longer engine life
One-piece aluminum base plate	Added reinforcing to prevent ruptures due to cold starts	Protects against leaks and the introduction of contaminants for longer component life
One-piece urethane end caps	Tighter bond with filter media	Eliminates gaps, keeping contaminants out of the engine for added protection, eliminates leak paths
Spiral roving and acrylic beads	Maintains pleat stability and spacing to eliminate bunching; holds dirt in environments with vibration.	Maximum efficiency and capacity; better protection and longer life engine
Non-metallic center tube to prevent collapsing during pressure spikes and cold oil start-ups	30% stronger than metal	Eliminates scored bearings and damage to other critical engine components
Resin-impregnated filter media	Custom blended media	Maximizes performance and life
One-piece, heavy gauge canister	Provides structural strength and anti-rupture protection	Durability and structural integrity supports extended intervals
Full range of media options	Engineered to meet specific operating conditions, equipment requirements and economical considerations	Filtration matched to your performance needs

Cat PrimeTime Priming Pumps

Cat PrimeTime Priming Pumps are easily installed on the frame or engine as retrofits. They prime the filter and fuel system with a flip of the switch.

- No need to pre-fill filter and risk debris reaching injectors
- Primes fuel filter in two to six minutes
- No time-consuming, difficult manual pumping



Cat Fuel Water Separators



1R-0770

- Removes more than 98% of debris 10 microns and larger - and eliminates virtually all free water and more than 87% emulsified water.
- Minimize the risk of plunger-to-barrel scuffing and seizure in fuel injectors, reducing failure rates.
- Extends the life of engine fuel injectors and the secondary, high efficiency fuel filter.

FEATURES	BENEFITS	RESULTS
Thicker gauge canister	Resist canister cracking and failure in extensive field testing	Longer life and increased protection
Primary fuel filter	Removes more than 98% of debris 10 microns and larger	Minimize the risk of plunger-to-barrel scuffing and seizure in fuel injectors, reducing failure rates
Water separator	Removes virtually all free water and more than 87% of emulsified water from diesel fuel	Extend the life of engine fuel injectors and the secondary, high efficiency fuel filter
Manual screw knob	Drains the collection bowl in less than a minute	Reduces maintenance and downtime
Reusable water collection bowl	Transparent for easy monitoring	Reduces maintenance costs

Cat Fuel Water Separators — Retrofits

ENGINE	PRIME TIME FULL FLOW CONFIGURATION	PRIME TIME PRIME ONLY CONFIGURATION	BASIC CONFIGURATION
Small Engines C12 and smaller	Kit 206-5756	N/A	Base 195-1068 with 1R-0769 (axial seal) FWS or Base 177-9778 with 1R-0770 (radial seal) FWS
Medium Engines C15-C16, 3408-3412	Kit 206-5756 The 1R-0770, included in the kit, can be replaced with the 1R-0771 for additional capacity.	N/A	Base 195-1068 with 1R-0781 (axial seal) FWS or Base 177-9778 with 1R-0771 (radial seal) FWS
Large Engines 3500 series	N/A	Kit 206-5756	(2) 207-2422 groups, each includes a 200-4139 (axial seal) FWS

Cat Standard Efficiency Radial Seal Air Filters

- Features standard elements for normal duty filtration.
- Designed for larger capacity and longer service life.
- Prevents dirt, soot, sand and other contaminants from entering your system.
- Available for all Cat equipment models.

TECHNOLOGY FEATURES	BENEFITS	RESULTS
Radial seal design	No tools required	Service times and maintenance costs minimized
All-steel adapter ring available to retrofit axial seal cleaners	Quickly bolts into position to accept the new filter design	Easily converts older machines
One-piece molded urethane end caps	Forms a tough, reliable, corrosion-proof bond to paper media	Up to 30% more seal contact area; more reliable seal than conventional elements
Densely pleated filter paper	Large media area provides up to 50% more capacity	Superior capacity without impeding airflow
Built-in pleat support and positive pleat spacing	Prevents pleat bunching	Ensures optimum filter media surface area
Heavy-duty metal inner and outer wrap	Increases structural strength and durability	Added protection and longer life
Baked-on enamel outer filter wrap	Resists corrosion	Longer component life



Cat Ultra High Efficiency Radial Seal Air Filters

- Features a unique media with a very fine fiber surface layer that improves filtration efficiency early in the life of the elements.
- Super fast efficiency rate eliminates window of opportunity for sharp abrasive particles to damage engine.
- Sustained low restriction leads to improved filter capacity, engine performance and fuel economy.
- Highly effective in today's engines with tight engine tolerances; maintain low emission and high performance requirements.
- Unique design for applications where extremely fine dust particles make up a high percentage of the contaminants in the atmosphere.
- Ideal for applications that have operating conditions with high amounts of exhaust soot, which tends to plug normal filters at low hours.

TECHNOLOGY FEATURES	BENEFITS	RESULTS
High initial filtration efficiency and high overall efficiency	Less dust reaches the engine	Reduced engine wear
Immediate dust cake build-up on the filter surface	Media at maximum efficiency when new; dust cake builds faster	Reduced engine wear, improved fuel economy and lower maintenance costs
Low initial and overall restriction throughout the life of the filter	Engine breathes easier; less power required to pull in air	Improved fuel economy and better engine performance and power
Super capacity	Filter lasts longer with fewer filter changes	Less chance of contamination during service
Exclusive Cat media	Super capacity, long life, maximum protection	Protect engine, reduce wear of hard sharp particles that can score cylinder



Filter Upgrade Cross Reference

Air Axial Seal Filter to Air Radial Seal Filter Adapter Kit Cross Reference

Axial Seal Type - Standard Primary	Axial Seal Type - Secondary	Optional Radial Seal Retrofit Kits - Axial to radial seal adapter kit	Radial Seal Type - Standard Primary	Radial Seal Type - Standard Primary Radial Seal Type - UHE Primary	Radial Seal Type - Secondary
7W-5389	2S-1285	6I-3828	6I-2499	132-7164	6I-2500
7W-5389	8N-4901	6I-3829	6I-2499	132-7164	6I-2500
7W-5317	2S-1286	6I-3830	6I-2501	128-2686	6I-2502
7W-5317	9S-9972	6I-3831	6I-2501	128-2686	6I-2502
7W-5316	8N-6883	6I-3831	6I-2503	132-7165	6I-2504
7W-5316	2S-1287	6I-3830	6I-2503	132-7165	6I-2504
7W-5495	1P-7360	6I-3832	6I-0273	132-1674	6I-0274
7W-5313	1P-8482	6I-3833	6I-2505	132-1675	6I-2506
7W-5313	6N-6444	6I-3833	6I-2507	132-7166	6I-2508
7W-5216	7N-1308	6I-3833	6I-2509	132-7167	6I-2510
7W-9853	7W-9567	106-7120	106-3969	132-7168	106-3973
4W-5716	6N-6067	106-7120/222-4376	106-3969	132-7168	106-3973
8N-6309	8N-2556		123-6855	132-7169	123-6856
9Y-7662	9Y-7663		131-8822	132-0685	131-8821

Cab Air Filtration Upgrade Options

Not for use in filtering hazardous materials

Odor Reduction Cabin Air Filters

- Caterpillar now offers a selection of charcoal impregnated cabin air filters for use in applications, where odors or airborne irritants are a concern. These filters provide significant odor reduction, but they are not designed to filter hazardous materials.

Compatibility and Fit

- Odor Reduction Cabin Air Filters can be used as direct replacements for standard filters. No modification is necessary, and pressure drop is similar to standard, so there is no adverse effect on air flow, A/C and heat performance, or cabin air pressure. Correct substitutions are indicated in the table below.

Activated-carbon filtering

- Odor Reduction Cabin Air Filters use high-performance activated carbon to quickly absorb odor-causing particles and reduce odors to a comfortable level. A bonded structure holds carbon in place even in high-vibration conditions and prevents carbon dusting. This design also makes the filters easy to install and safe to dispose.

Improved particle removal

- Odor Reduction filters also provide higher particle removal efficiency, both initially and throughout filter life. Fewer particles of soil, dust, pollen, mold spores and other irritants enter the cab, even after sustained use.

High surface dust loading

- By holding more dust on the surface, Odor Reduction Cabin Air Filters provide a number of benefits. They last longer, are easier to clean, protect the A/C core from performance-robbing build-up, and reduce maintenance costs for the HVAC unit.

Cleaning and re-use is recommended for Odor Reduction filters under the following circumstances:

- Airflow restriction is increased
- Filter is not damaged
- Filter has been used less than 12 months
- Odor reduction capabilities are still good
- * To clean the filter, use compressed air at 70 psi or less with a 1/8 inch diameter nozzle at a minimum distance of 2 inches.

Replacement Guidelines

- Replace damaged filters, filters used longer than 12 months or filters that no longer reduce odors.

Part Number	Description
107-0266	Air - Cab
7T-1890	Air - Cab
9X-8216	Air - Cab
105-4968	Air - Cab Recirculation

(Continued)

Cab Air Filtration Upgrade Options (Continued)

Not for use in filtering hazardous materials

Part Number	Description
112-7448	Air - Cab
113-0305	Air - Cab
116-5796	Air - Cab Vent
119-3355	Air - Cab A/C
2V-0036	Air - Cab Recirculation
6T-0988	Air - Cab
7G-8116	Air- Cab
7T-1889	Air - Cab
7X-6041	Air- Cab
8P-5343	Air - Cab
9G-1518	Air- Cab
9W-3639	Air- Cab

Retro-Fit Breather Upgrade Options¹

Function of Breathers

- Breathers are an important part of any professional contamination control strategy. As the volume of liquid changes inside a container (e.g., a hydraulic tank), air must enter and exit the container in order to prevent the container from becoming over-pressurized or in vacuum. Without a breather the exchange of air as it enters and exits tanks introduces air borne contaminants.

Not filtering small air-borne particles results in:

- Pre-mature component replacement
- Lower productivity
- More frequent filter changes

Use of Breathers

- Track-type tractors, stationary engines (industrial, marine, generator sets), motor graders, and Challenger® agriculture tractors are a few product families that have breathers installed on production fuel tanks, hydraulic systems, and gear boxes. Utilizing breathers in order to improve system performance on Caterpillar® production equipment is expanding.
- To improve existing fluid system contamination control, Caterpillar is providing retrofit breathers for field installation on Cat equipment and other manufacturer's equipment.

Advantage of a Breather

- In general, small particles cause abrasive wear on components and larger particles tend to cause sudden breakdowns by clogging pathways or creating interference between components. Usually, a breather is much less expensive than a filter, and its use can increase the service interval for the filter. In systems where air is forced out through the breather, such as in hydraulic or fast fill applications, the dirt is blown out of the element, thereby increasing its life.

Breather Selection

- The level of breather filtration required in a system depends on the application. The more sensitive to contamination the system is, the greater the need for filtration.

General Rule of Thumb

- Efficiency - Higher breather efficiencies will maintain a cleaner system.
- Restriction - If air flow capacity is in question, use the larger breather.
- Location - When choosing the location for the breather, make sure that it is as convenient as possible to inspect and change: good clearance and visual line.

Change intervals:

- Breather change interval can vary widely depending on extremes in operating conditions. As a general rule, change breathers with every fluid change or when breather vent slots appear clogged.

Inspection:

- Include visual inspection of breathers in routine maintenance inspections. If in doubt, change the breather. The cost of a new breather is minimal in comparison to the potential downstream costs of not changing it.

Description	Part Number
0.125 inch NPT Pipe Thread	
Breather	5F-5434
Breather	8M-2665
0.25 inch NPT Pipe Thread	
Breather	124-2831
Breather	183-3873
Breather	4H-6112
Breather	9G-5127
0.375 inch NPT Pipe Thread	
Breather	171-5286
Breather	9G-9981
0.75 inch NPT Pipe Thread	
Breather	6G-0078
Breather	7U-7613
1.06 inch NPT Pipe Thread - Breather Vents with Pressure and Vacuum Relief - DO NOT MODIFY, REPLACEMENT PARTS ONLY²	
Breather	116-2810
Breather	160-5615
Breather	188-8844
Breather	191-5439

(Continued)

Retro-Fit Breather Upgrade Options¹ (Continued)

Description	Part Number
1.06 inch NPT Pipe Thread - Breather Vents with Pressure and Vacuum Relief - DO NOT MODIFY, REPLACEMENT PARTS ONLY (Continued)²	
Breather	207-5997
Breather	4T-4145
Breather	9J-4703
Breather	2U-7441
1.06 inch NPT Pipe Thread - Breather Vents with Manual Pressure Relief - DO NOT MODIFY, REPLACEMENT PARTS ONLY²	
Breather	157-7911
Breather	154-6165
Breather	220-0812
Breather	220-0813
Breather	220-0814
Breather	9T-0818
Cartridge/Spin-On Type	
Hydraulic Filter Advanced	077-5232
Breather	171-5286
Hydraulic Filter Advanced	186-5778
Breather	194-7849
Breather	245-7451
Breather	6G-0078
Breather	8X-4575
Breather	9C-4937
Breather	9T-1119
Metric	
Breather	055-1990
Breather	145-0870

¹ Breather Efficiency Micron Rating Guide – Standard efficiency: > 50 µm absolute

Advanced efficiency: 10 – 50 µm absolute

² Warning! For breather vents with manual or automatic pressure/vacuum relief, do not modify relief setting! These are replacement parts only, and must not be interchanged with parts that have different pressure/vacuum relief settings. Original pressure/vacuum relief setting must be retained in order to prevent pump and/or seal damage.

Choosing the Correct Cat Hydraulic Filter

The Cat Hydraulic Filter line now includes Standard, Advanced Efficiency and Ultra High Efficiency (UHE) filters, providing our customers the best selection and the best engineered protection available anywhere.

Selection Guidelines

In order to choose the right filter for your machine, always begin by consulting the maintenance manual for proper change interval and recommended filter part numbers. It is usually safe to substitute a higher-efficiency filter, but NEVER substitute a lower-efficiency filter than the one recommended.

If your transmission or hydraulic system has a filter bypass dash indicator and a Standard filter is recommended, you can use an Advanced Efficiency or UHE. If you do not have a bypass indicator, consult your Cat Dealer before upgrading.

Hydraulic and Transmission Filters



Cat Standard Efficiency Hydraulic and Transmission Filters

- Features standard elements for normal duty filtration.
- Designed to maintain system cleanliness.
- Available for all Cat equipment models.

Cat Advanced High Efficiency Hydraulic and Transmission Filters

- Special media provides advanced protection against contaminant introduction during maintenance and repair.
- Engineered for effective contamination control.
- Protects hydraulic and drive train systems against accelerated wear.

Cat Ultra High Efficiency Hydraulic and Transmission Filters

- Super-fine synthetic media removes a higher proportion of very small particles and an even higher proportion of larger particles.
- Specially engineered to aid in optimum contamination control efforts.
- Increases system efficiency, eliminate system failures and extend oil life.
- Reduces exposure of abrasives to critical components - extending component wear life.
- Use to clean up systems following repairs and rebuilds.

Hydraulic and Transmission Spin-On Filter Options

Selection Guidelines

- In order to choose the right filter for your machine, always begin by consulting the maintenance manual for proper fit and installation.

Upgrade Procedure and Intervals

- Higher efficiency filters can clog sooner because they trap smaller particles which standard filters do not.

Hydraulic and Transmission Spin-On Filter Options (Continued)

Approx. Size	Thread Size	Standard Efficiency	Advanced Ultra High Efficiency	Ultra High Efficiency	Fire Resistant Fluid
3 x 5	13/16 -16	119-4740		211-1026	
3 x 5	1-12		077-3492		
3 x 6	2-12	4I-3948	184-3931	126-1813	
3 x 6	M45 x 2		5I-8670		
3 x 9	2-12		130-3212	126-1814	
3 x 9			4I-3950	126-1814	
3 x 9			185-0337	126-1814	
4 x 6	1 3/8-12	090-2900	144-6691	126-1815	121-9868
4 x 6	2-16	123-8189			
4 x 6	1 1/8-16	4T-6915			
4 x 6	1 1/8-16	139-4359			
4 x 7	1 1/8-16		093-7521		
4 x 7	1-12 UNF2B	161-4741			
4 x 8	1 1/2-16		3T-8642		
4 x 9	1 1/4-12		201-0875	223-7810	
4 x 9	1 3/8-12		1G-8878	102-2828	156-0214
4 x 10	1 1/8-16	8C-0292			
5 x 7	1 1/2-16		4T-6788	223-7809	
5 x 7	1 1/2-16		9T-8578	144-0832	
5 x 7	1 1/2-16		077-3058		
5 x 8	1 3/4-12		9T-6636	126-1816	
5 x 8	1 1/2-16		209-5590		
5 x 11	1 1/2-16	9U-6985	9U-5870	9U-6983	198-3188
5 x 11	1 1/2-16	9U-6985	9U-6984	9U-6983	
5 x 12	1 3/4-12		108-1153	126-1817	134-3014
5 x 12	1 3/4-12		9T-0973	126-1817	134-3014
5 x 12	1 3/4-12			225-4118	
5 x 12	1 3/8-12		6E-6408	126-1818	

Hydraulic and Transmission Spin-On Filter Options (cont.)

Approx. Size	Thread Size	Standard Efficiency	Advanced High Efficiency	Ultra High Efficiency	Fire Resistant
5 x 14	1 3/4-12		152-6902	207-5035	

Hydraulic and Transmission Cartridge Filter Options

Approx. Size	Standard Efficiency	Advanced High Efficiency	Ultra High Efficiency	Fire Resistant
1 x 4	109-7293			
2 x 3	094-1053			
2 x 4	109-7289			
2 x 8	7F-7238			
2 x 8	1G-5459			
2 x 8	123-8999		117-9900	
2 x 9	9U-5871			
2 x 10	8T-7479			
3 x 4	5J-8879			
3 x 4	081-4169			
3 x 5	1R-0746		126-1810	
3 x 5	9J-6472			
3 x 5	2U-6391			
3 x 5	094-4421			
3 x 5	180-0850			
3 x 6	081-2634			
3 x 8	9T-9054		9T-7656	
3 x 8			7R-4568	
3 x 8	134-0964		4C-6860	
3 x 8	185-1379		185-1278	
3 x 9	1R-0728		139-1532	4T-3130
3 x 9	1R-0729			
3 x 9	8H-0847			
3 x 9			8T-3815	
3 x 13	1Q-1688			
3 x 17	159-2967			
4 x 6	9C-8688			
4 x 7	077-3250			
4 x 7	077-2825			
4 x 7	077-4375			
4 x 7	032-9868			
4 x 8	123-2873			
4 x 8	2C-8410			
4 x 8	092-2568			
4 x 8	143-2849			
4 x 8	159-1427			
4 x 8	159-1428			

Filter Upgrade Cross Reference

(Continued)

Hydraulic and Transmission Cartridge Filter Options (Continued)

Approx. Size	Standard Efficiency	Advanced High Efficiency	Ultra High Efficiency	Fire Resistant Fluid
4 x 9	1R-0719	1R-0773	132-8875	4T-3131
4 x 9		198-7397	139-1533	
4 x 9			077-5479	
4 x 9	054-1719			
4 x 9	089-3940			
4 x 9	078-0651			
4 x 9	081-3540			
4 x 11			046-9290	
4 x 11	093-5369			
4 x 16	163-4032			
4 x 16 (R)	7R-8232			
4 x 16 (R)	077-3569			
4 x 26	6E-5216			
5 x 5	6J-0363			
5 x 6	5J-8877			
5 x 7 (R)	1R-0735	1R-0777	139-1537	104-6931
5 x 7 (R)			138-1253	
5 x 9	1R-0741	1R-0778	132-8876	4T-3132
5 x 9			139-1534	
5 x 9	9G-6420			
5 x 10.5			1R-1809	
5 x 11 (R)	1R-0722	1R-0774	139-1536	4T-3134
5 x 24	109-7287		137-7249	
6 x 12	094-3229		139-1539	
6 x 12			5I-4530	
6 x 16	126-2081	178-9806	126-2131	
6 x 18	094-4412		139-1540	
6 x 18			4I-9513	
7 x 9	1R-0732	1R-0792	167-2009	4T-3133
7 x 9 (R)		1R-1802		
10 x 22	185-1375	192-1560		

Filter Upgrade Cross Reference

