



## Section: G Crankcase Filtration

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



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# Closed Crankcase Ventilation (CCV)

## How They Work

CCV systems integrate three distinct functions:

First is to provide coalescing and separation of oil mist particles, soot, and liquid volatiles created during combustion process. CCV systems employ a depth loading media that has a very low pressure drop through the filter, but increases the ability to coalesce particles out of the blow-by gas. With this, we are able to achieve very high efficiencies and maintain crankcase pressure between -4 to +4 inches of water on closed systems.

Second is to provide a sump chamber and check valve which returns coalesced liquid oil back to the crankcase. Depending on amount of carryover created by engine, significant amounts of oil will be saved and returned to the crankcase. This lowers the overall maintenance cost of the engine, and protects the environment from contamination.

Third is the pressure regulation valve. It balances pressure in the crankcase, protecting it from high vacuum created by a dirty air filter and today's high mass flow turbocharger compressors. Our pressure regulation valves monitor crankcase pressure ensuring that it maintains a range of -4 to +4 inches of water. These pressures are maintained throughout the operational life of the filter. On standard units, an integrated internal bypass feature is an option with our valve. The valve also creates a pre-separation impactor surface when operating, which processes large droplet sizes above 10 micron. The valve system relies on ambient external pressure to regulate blow-by gasses and does not require introduction of outside air into the CCV system.

All of these components are combined into one robust package. Racor CCV filters provide diesel engine users a "systems" solution to eliminate blow-by emissions.



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## Racor CCV History

Beginning with a successful partnership of technology, filtration expertise, and customer focus, Racor released the first integrated CCV system for the diesel engine industry in 1997. The Racor CCV4500 was the first of four CCV units that marry several subcomponents:

- A pressure regulator
- Filter element,
- Impactor/pre-separator in the pressure regulator
- Optional bypass in the regulation valve
- Filter change indicator
- Drain to a remote mounted anti-suction check valve
- Inlet and outlet ports with variable size options



Questions? Contact Technical Support:  
800 344 3286 or 209 521 7860 ext. 7555  
e-mail: racortech@parker.com

## CCV

### Market Challenges and Overview

#### The Problem – Engines Releasing Pollutants Through Unfiltered Breathers

Environmental concerns and legislation to control crankcase emissions have increased significantly. To further reduce the total emissions of engines, in some applications it is becoming necessary to close the crankcase breather system, routing these gases into the air intake system.

Crankcase blow-by is produced when combustion gases under high pressure are blown past the piston rings into the crankcase. As these blow-by gases pass through

the crankcase, they become contaminated. Racor's Crankcase Ventilation System removes these contaminations. The exhaust can then be allowed to vent to the atmosphere.

For applications requiring more stringent emissions requirements, a closed crankcase filter is recommended. In this application, the exhaust from the crankcase filter is routed to the inlet side of the turbo. A regulator in the crankcase filter controls the vacuum in the crankcase to ensure proper operation.



- In closed environments like generator sets and marine engine rooms, damage to surrounding equipment such as radiators and electronic control panels can cause hazardous conditions, down time, and expensive maintenance.
- Oil mist will coat and contaminate the after cooler and other engine components. This coating reduces engine cooling capacity, causes a degradation of engine performance and reliability over time, and shortens the useful service life of the engine components.
- The engine intake inhales contaminated gasses, clogging air filter systems, and damaging turbocharger components. It is imperative that oil mist be removed from the crankcase emissions prior to introduction into the engine air intake in closed breather systems.

## Features and Benefits

Unique crankcase pressure regulator with integral bypass valve minimizes variation in crankcase pressure. Excessive variation in crankcase pressure can damage seals, cause loss of oil, and other problems. Pop-up style indicator alerts of bypass condition and need for filter change.

Choose left or right-hand inlet. Available with or without bypass indicator

High-efficiency oil separation to 0.3 micron.

Stainless steel latches for tool-less element change.

Replaceable high-performance filter with depth-loading, micro-glass fiber coalescing media.

Extended filter service interval from the Vaporbloc™ element.

Steel (4500's) or aluminum (6000, 8000 and 12000's) housing with epoxy powder coating.

Drain check valve allows collected oil to return to crankcase. This eliminates frequent draining and significantly reduces oil consumption.

Continuous operating temperature range is -40°F to +240°F (-40°C to 116°C).



In a robust, compact package, the patented Racor Closed Crankcase Ventilation (CCV) Filter System provides superior oil coalescence and crankcase pressure control under the most severe conditions.

The only routine maintenance required for the CCV system is filter replacement. Typical service life of the high-performance filter in diesel applications is 750 hours. Some variations in service life occur depending on load profile, engine wear condition, flow and aerosol mass concentration of crankcase emissions, and soot concentration.

### Selecting A CCV Assembly:

CCV systems are designed to handle various crankcase flow rates up to 50 CFM. Traditionally, the crankcase flow rate can be calculated as follows: rated horsepower ÷ 40 = cubic feet per minute (CFM). This formula can only be used as a guide. The blow-by flow rate of a worn engine, at time of overhaul, is generally double the flow rate when the engine is new. The flow rate of a worn engine is factored into the formula. Note: Specify left or right-hand inlet when ordering.

### Example:

CAT 3116: 260 HP/40 = 6.5 CFM  
Select CCV4500

## How To Order CCV Systems

# CCVXXDB - YYZ

### "XX" Unit Size

15 = 1 CFM max  
 45 = 10 CFM max  
 60 = 20 CFM max  
 80 = 40 CFM max  
 120 = 50 CFM max

### "D" Duty Cycle

0 = Continuous Operation.  
 5 = Once shut-down every 12 hours required for auto draining.  
**"B" Bypass**

0 = With internal bypass.  
 1 = No internal bypass.  
**"YY" Media Density**

-04 = Low efficiency  
 -08 = High efficiency  
 -10 = Ultra high efficiency  
**"Z" Inlet Orientation**

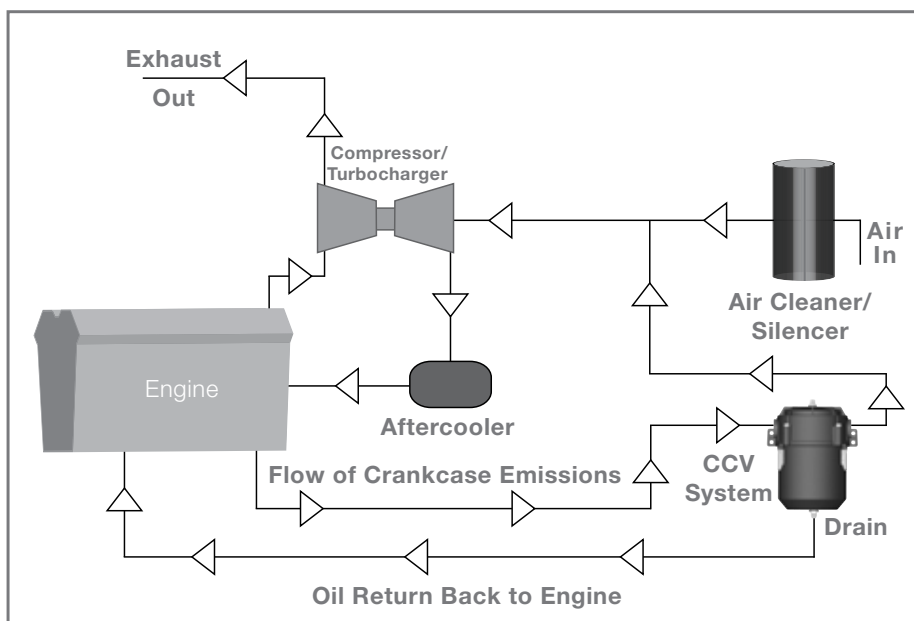
L = Left side  
 R = Right side  
 (Not available on CCV1500)

**Example: CCV4501-08L**

Note: Not all configurations are standard.

See CCV Assemblies for a complete description of all assemblies offered.

## CCV System Flow



## CCV™ Assemblies

### CCV1500 Series – Maximum Flow 1 CFM

Part No.	Description	Inlet Side	Media Density	Inlet/Outlet Thread Size	Check Valve	Swivel Fitting (Qty.)	Hose I.D. (Qty.)
<b>CCV1500-04</b>	Bypass Assembly	N/A	Low	N/A	N/A	N/A	3/4" (3 ft.)
<b>CCV55365-04</b>	Replacement Filter	N/A	Low	N/A	N/A	N/A	N/A

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### CCV4500 Series – Maximum Flow 10 CFM

Part No.	Description	Inlet Side	Media Density	Inlet/Outlet Thread Size	Check Valve	Swivel Fitting (Qty.)	Hose I.D. (Qty.)
<b>CCV4500-08L</b> <b>CCV4500-08R</b>	Bypass Assembly	Left Right	High	1-3/16"-12 SAE	1/4" NPT	#6 JIC (2 pcs.)	3/8" (3 ft.)
<b>CCV4501-08L</b> <b>CCV4501-08R</b>	Non-Bypass Assembly	Left Right	High	1-3/16"-12 SAE	1/4" NPT	#6 JIC (2 pcs.)	3/8" (3 ft.)
<b>CCV4500-10L</b> <b>CCV4500-10R</b>	Bypass Assembly	Left Right	Ultra	1-3/16"-12 SAE	1/4" NPT	#6 JIC (2 pcs.)	3/8" (3 ft.)
<b>CCV4501-10L</b> <b>CCV4501-10R</b>	Non-Bypass Assembly	Left Right	Ultra	1-3/16"-12 SAE	1/4" NPT	#6 JIC (2 pcs.)	3/8" (3 ft.)
<b>CCV55248-08</b> <b>CCV55248-10</b>	Replacement Filter	N/A	High Ultra	N/A	N/A	N/A	N/A



Questions? Contact Technical Support:  
800 344 3286 or 209 521 7860 ext. 7555  
e-mail: racortech@parker.com

## CCV™ Assemblies

### CCV6000 Series – Maximum Flow 20 CFM

Part No.	Description	Inlet Side	Media Density	Inlet/Outlet Thread Size	Check Valve	Swivel Fitting (Qty.)	Hose I.D. (Qty.)
<b>CCV6000-08L</b> <b>CCV6000-08R</b>	Bypass Assembly	Left Right	High	1-5/8"-12 SAE	1/4" NPT	#6 JIC (2 pcs.)	3/8" (3 ft.)
<b>CCV6001-08L</b> <b>CCV6001-08R</b>	Non-Bypass Assembly	Left Right	High	1-5/8"-12 SAE	1/4" NPT	#6 JIC (2 pcs.)	3/8" (3 ft.)
<b>CCV6000-10L</b> <b>CCV6000-10R</b>	Bypass Assembly	Left Right	Ultra	1-5/8"-12 SAE	1/4" NPT	#6 JIC (2 pcs.)	3/8" (3 ft.)
<b>CCV6001-10L</b> <b>CCV6001-10R</b>	Non-Bypass Assembly	Left Right	Ultra	1-5/8"-12 SAE	1/4" NPT	#6 JIC (2 pcs.)	3/8" (3 ft.)
<b>CCV55274-08</b> <b>CCV55274-10</b>	Replacement Filter	N/A	High Ultra	N/A	N/A	N/A	N/A

### CCV8000 Series – Maximum Flow 40 CFM

Part No.	Description	Inlet Side	Media Density	Inlet/Outlet Thread Size	Check Valve	Swivel Fitting (Qty.)	Hose I.D. (Qty.)
<b>CCV8000-08L</b> <b>CCV8000-08R</b>	Bypass Assembly	Left Right	High	1-7/8"-12 SAE	3/8" NPT	#8 JIC (2 pcs.)	1/2" (3 ft.)
<b>CCV8000-08L</b> <b>CCV8000-08R</b>	Non-Bypass Assembly	Left Right	High	1-7/8"-12 SAE	3/8" NPT	#8 JIC (2 pcs.)	1/2" (3 ft.)
<b>CCV8000-10L</b> <b>CCV8000-10R</b>	Bypass Assembly	Left Right	Ultra	1-7/8"-12 SAE	3/8" NPT	#8 JIC (2 pcs.)	1/2" (3 ft.)
<b>CCV8001-10L</b> <b>CCV8001-10R</b>	Non-Bypass Assembly	Left Right	Ultra	1-7/8"-12 SAE	3/8" NPT	#8 JIC (2 pcs.)	1/2" (3 ft.)
<b>CCV55222-08</b> <b>CCV55222-10</b>	Replacement Filter	N/A	High Ultra	N/A	N/A	N/A	N/A

### CCV12000 Series – Maximum Flow 50 CFM

Part No.	Description	Inlet Side	Media Density	Inlet/Outlet Thread Size	Check Valve	Swivel Fitting (Qty.)	Hose I.D. (Qty.)
<b>CCV12000-08L</b> <b>CCV12000-08R</b>	Bypass Assembly	Left Right	High	1-7/8"-12 SAE	3/8" NPT	#8 JIC (2 pcs.)	1/2" (3 ft.)
<b>CCV12001-08L</b> <b>CCV12001-08R</b>	Non-Bypass Assembly	Left Right	High	1-7/8"-12 SAE	3/8" NPT	#8 JIC (2 pcs.)	1/2" (3 ft.)
<b>CCV12000-10L</b> <b>CCV12000-10R</b>	Bypass Assembly	Left Right	Ultra	1-7/8"-12 SAE	3/8" NPT	#8 JIC (2 pcs.)	1/2" (3 ft.)
<b>CCV12001-10L</b> <b>CCV12001-10R</b>	Non-Bypass Assembly	Left Right	Ultra	1-7/8"-12 SAE	3/8" NPT	#8 JIC (2 pcs.)	1/2" (3 ft.)
<b>CCV55222-12-08</b> <b>CCV55222-12-10</b>	Replacement Filter	N/A	High Ultra	N/A	N/A	N/A	N/A



## CCV Specifications

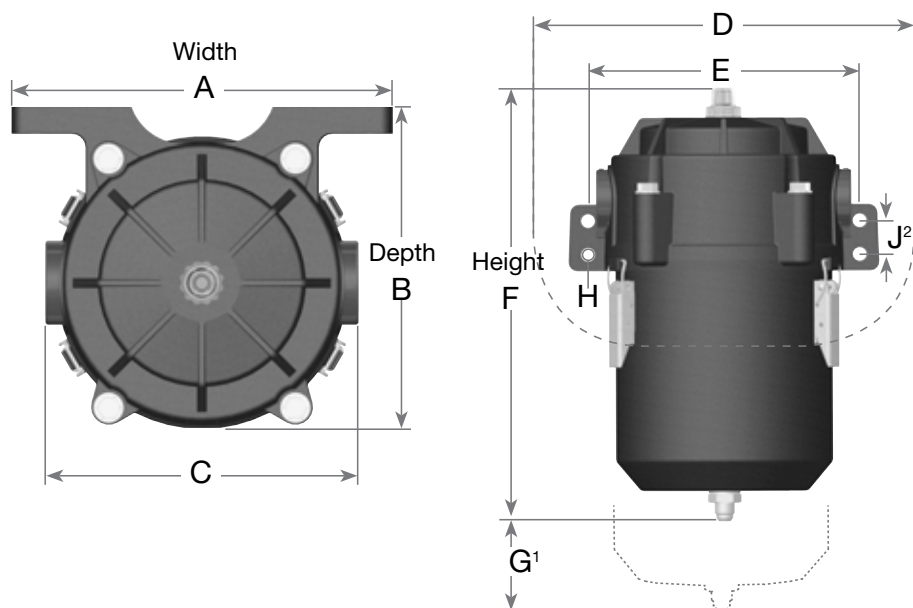


	CCV1500	CCV4500	CCV6000	CCV8000	CCV12000
<b>Max. Flow Rate</b>	1 CFM (28 LM)	10 CFM (283 LM)	20 CFM (566 LM)	40 CFM (1133 LM)	50 CFM (1416 LM)
<b>Max. Engine Rating</b>	40 HP (30 KW)	400 HP (298 KW)	800 HP (597 KW)	1600 HP (1193 KW)	2000 HP (1491 KW)
<b>Inlet/Outlet Port Size</b>	3/4" hose	1 3/16"-12 STOR	1 5/8"-12 STOR	1 7/8"-12 STOR	1 7/8"-12 STOR
<b>Weight</b>	1.5 lbs (0.7 kg)	3.3 lbs (1.5 kg)	5.0 lbs (2.3 kg)	8.7 lbs (3.9 kg)	9.3 lbs (4.2 kg)
<b>Low Density Filter Replacement</b>	CCV55365-04	CCV55248-04	N/A	N/A	N/A
<b>High Density Filter Replacement</b>	N/A	CCV55248-08	CCV55274-08	CCV55222-08	CCV55222-12-08
<b>Ultra Density Filter Replacement</b>	N/A	CCV55248-10	CCV55274-10	CCV55222-10	CCV55222-12-10
<b>Housing Material</b>	Glass-filled nylon and black powder epoxy-coated steel bracket.	Die cast head, glass-filled nylon and black powder epoxy-coated steel bowl.	Die cast head, glass-filled nylon and black powder epoxy-coated steel bowl.	Die cast head, glass-filled nylon and black powder epoxy-coated steel bowl.	Die cast head, glass-filled nylon and black powder epoxy-coated steel bowl.
<b>Crankcase Pressure Regulator</b>	Vacuum Limiting valve	Integral	Integral	Integral	Integral
<b>Bypass/Change Indicator</b>	N/A	Integral or Remote	Integral or Remote	Integral or Remote	Integral or Remote
<b>Engine BlockCheck Valve Return Fitting</b>	N/A	1/4" NPT	1/4" NPT	3/8" NPT	3/8" NPT
<b>Swivel Fitting (Qty.)</b>	N/A	#6 JIC (2 pcs.)	#6 JIC (2 pcs.)	#8 JIC (2 pcs.)	#8 JIC (2 pcs.)
<b>Oil Drain Hose I.D.</b>	N/A	0.375 in. (0.95 cm)	0.375 in. (0.95 cm)	0.5 in. (1.27 cm)	0.5 in. (1.27 cm)

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Units can be manifolded to handle higher flow rates. Do not use CCV1500 in continuous duty applications.

## CCV Dimensions



Dimension	1500 Series		4500 Series		6000 Series		8000 Series		12000 Series	
	IN	CM	IN	CM	IN	CM	IN	CM	IN	CM
<b>A</b>	8.0	20.3	7.2	18.3	8.6	21.8	10.6	26.9	10.6	26.9
<b>B</b>	5.0	12.7	5.6	14.2	7.3	18.5	9.3	23.6	9.3	23.6
<b>C</b>	3.6	9.1	5.6	14.2	7.1	18.0	9.1	23.1	9.1	23.1
<b>D</b>	8.2	20.8	7.5	19.1	11.3	28.7	13.3	33.8	13.3	33.8
<b>E</b>	7.0	17.8	6.0	15.2	7.5	19.1	9.5	24.1	9.5	24.1
<b>F</b>	5.0	12.7	9.3	23.6	12.0	30.5	13.9	35.3	18.0	45.7
<b>G¹</b>	6.0	15.2	2.3	5.7	4.0	10.1	5.0	12.7	6.0	15.2
<b>H</b>	0.38	0.97	0.43	1.09	0.37	0.94	0.43	1.09	0.43	1.09
<b>J²</b>	N/A	N/A	N/A	N/A	0.93	2.4	1.06	2.7	1.06	2.7

<sup>1</sup> Dimension "G" is the minimum filter removal clearance - allow more room if possible for ease of service.

<sup>2</sup> Dimension "J" is not applicable on CCV4500 assemblies because there are only two (2) mounting holes. All other units have four (4) mounting holes.

# CCV Hose and Fitting Kits

## CCV4501 Series Assemblies

Part No.	Description
<b>CCV55024</b>	(1) 3/4" fitting, (1) 1" fitting, (1) 3/4" ID x 4 foot long hose, (1) 1" ID x 4 foot long hose, (4) clamps and (4) ties
<b>CCV55025</b>	(2) 1" fittings, (1) 1" ID x 8 foot long hose, (4) clamps and (4) ties
<b>CCV55037</b>	(1) 1-1/4" fitting, (1) 1" fitting, (1) 1-1/4" ID x 4 foot long hose, (1) 1" ID x 4 foot long hose, (4) clamps and (4) ties
<b>CCV55038</b>	(1) 3/4" fitting, (1) 1" fitting, (1) 3/4" ID x 6 foot long hose, (1) 3/4" Tee fitting, (1) 1" ID x 4 foot long hose, (8) clamps and (8) ties

## CCV6001 Series Assemblies

Part No.	Description
<b>CCV55046</b>	(2) 1-1/4" fittings, (1) 1-1/4" ID x 8 foot long hose, (4) clamps and (4) ties
<b>CCV55047</b>	(2) 1-1/4" fittings, (1) 1-1/4" Tee fitting, (1) 1-1/4" ID x 10 foot long hose, (8) clamps and (8) ties
<b>CCV55048</b>	(2) 1-1/4" fittings, (1) 1-1/2" ID x 4 foot long hose, (1) bushing reducer, (1) 1-1/4" ID x 4 foot long hose, (4) clamps and (4) ties
<b>CCV55049</b>	(2) 1-1/4" fittings, (1) 1-1/2" ID x 5 foot long hose w/2" cuff, (1) bushing reducer, (1) 1-1/4" ID x 4 foot long hose, (4) clamps and (4) ties

## CCV8001 and CV12001 Series Assemblies

Part No.	Description
<b>CCV55067</b>	(2) 1-1/2" fittings, (1) 1-1/2" ID x 10 foot long hose, (1) bushing reducer, (4) clamps and (4) ties
<b>CCV55068</b>	(2) 1-1/2" fittings, (1) 1-1/2" Tee fitting, (1) 1-1/2" ID x 12 foot long hose, (2) bushing reducers, (8) clamps and (8) ties
<b>CCV55069</b>	(2) 1-1/2" fittings, (1) 1-1/2" ID x 5 foot long hose w/2" cuff, (1) bushing reducer, (1) 1-1/2" ID x 5 foot long hose, (4) clamps and (4) ties

## Hose and Fitting Kits

Hose and fitting kits include inlet and outlet fittings and enough hose for a typical installation of a CV assembly. CV assemblies require special fittings only available from Racor. Hose and fitting kits are available in various sizes and configurations.

## Bulk Hose Kits Drain Hoses

Part No.	Push-Lok Hose Size
<b>CCV836-6-25</b>	3/8 I.D., 25' Roll
<b>CCV836-6-50</b>	3/8 I.D., 50' Roll
<b>CCV836-8-25</b>	1/2 I.D., 25' Roll
<b>CCV836-8-50</b>	1/2 I.D., 50' Roll

## Inlet/Outlet Hose Kits

(available by the foot)

Part No.	Corrugated Hose Size (I.D.)
<b>CV1034-01</b>	3/4"
<b>CV1100-01</b>	1"
<b>CV1114-01</b>	1 1/4"
<b>CV1112-01</b>	1 1/2"

## Hump Hose Fittings

These are designed to be used with existing air cleaner to turbo rubber adapters.

Part No.	Hose
<b>CCV55540</b>	0.75"
<b>CCV55113</b>	1.0"
<b>CCV55114</b>	1.25"
<b>CCV55115</b>	1.5"

## Marine Air Filters with CCV Connector

The Racor Marine Air Filter and the Racor CCV can be connected to bring you effective air and crankcase filtration with one simple hose and clamp.



Marine Air Filter

Marine Air Filter	Replacement Filter Part No.	Outlet Dia.	Length	Hose Barb	Dia.
<b>AF M408512</b>	AF M8040	4"	12"	1"	8.5"
<b>AF M501012</b>	AF M8050	5"	12"	1"	10"
<b>AF M601212</b>	AF M8060	6"	12"	1.25"	12"

All Marine Air Filters include Installation Instructions

Note: AF M601212 includes 1-1/4" x 1-1/2" Bushing (connects to 1-1/2" I.D. Hose)

## CCV Heater Kits

CCV heater kits are an optional accessory for engine applications operating in severe cold weather. Emulsion and/or ice deposits on the element and inside the canister develop when the air blast from the radiator cools the CCV assembly.

The emulsions are created by water vapors condensing and combining with oil droplets in the cold air stream of the CCV system. This build-up can prematurely choke the filter and reduce filter life. The heater band and insulating sleeve are placed over the CCV canister and insulate the assembly to prevent the emulsion build-up.

Reduced filter life can be avoided by installing a Racor CCV Heater Kit.



Insulating Sleeve



Heater Band

- Available for AC or DC power supplies

### Tap Sleeves

Tap Sleeves are used for inline installation between filter and turbocharger. Pick size needed by matching pipe diameter.



Part No.	Size
<b>CCV30100</b>	3" x 1"
<b>CCV40100</b>	4" x 1"
<b>CCV50125</b>	5" x 1-1/4"
<b>CCV60125</b>	6" x 1-1/4"

Note: CCV60125 includes a 1 1/4" by 1 1/2" bushing reducer (connects to 1 1/2" ID hose) part # 55020.

### Heater Kits

Heater Kits are used to increase your filter life by minimizing emulsion build up which may be caused by various severe weather environments. Available for both AC or DC power supplies.

CCV Assembly	Heater Kit Part No.
<b>CCV4500</b>	CCV55461
<b>CCV6000</b>	CCV55462
<b>CCV8000</b>	CCV55463

Kits include heater band and insulating sleeve only. CCV assembly sold separately.

# CCV Conversion Kit



## CCV Conversion Kits

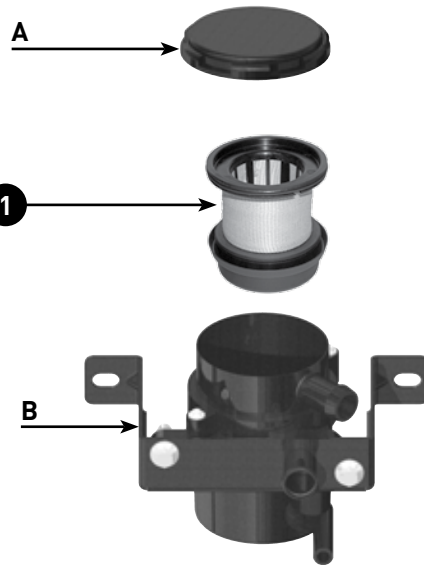
- CCV55613-08 (High Density)
- CCV55613-10 (Ultra Density)

The CCV55613-08 and CCV55613-10 allow the CCV8001 to be converted to a CCV12001. The CCV12001 series offers 60% additional media. The CCV12001 series is great for applications where extra capacity is desired and immediate engine accessibility is not available. It allows for increased efficiency and longer service intervals. Kit includes element, wear spacer, o-rings, and CCV12001 bowl

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## CCV1500-04 Replacement Parts

Part No.	Description
1. CCV55365-04	Replacement Filter - Low Density



Questions? Contact Technical Support:  
 800 344 3286 or 209 521 7860 ext. 7555  
 e-mail: racortech@parker.com

## CCV4500 Replacement Parts

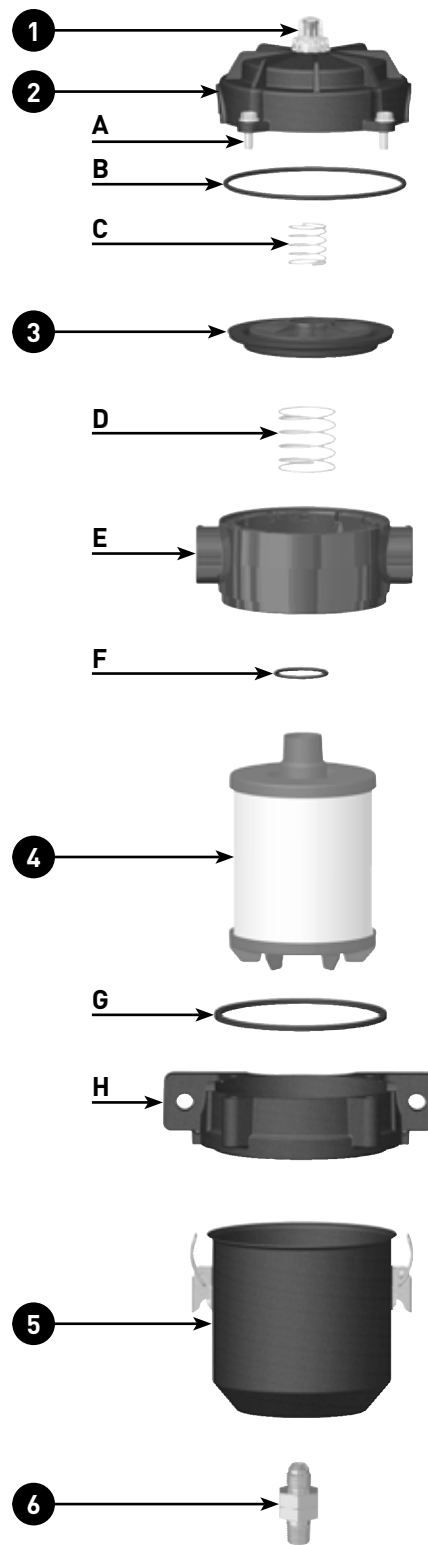
Part No.	Description
1. <b>CCV55081</b>	Bypass Indicator Kit
2. <b>CCV55246L</b> <b>CCV55246R</b>	Head Assembly (Left Side Inlet) <i>(Kit includes 1, 3, A, B, C, D, E, and H)</i> Head Assembly (Right Side Inlet) <i>(Kit includes 1, 3, A, B, C, D, E, and H)</i>
3. <b>CCV55247</b>	Diaphragm Kit
4. <b>CCV55248-08</b> <b>CCV55248-10</b>	Filter Replacement - High Density <i>(Kit includes F and G)</i> Filter Replacement - Ultra Density <i>(Kit includes F and G)</i>
5. <b>CCV55249</b>	Can Assembly <i>(Kit includes G)</i>
6. <b>CCV55279</b>	1/4" MNPT Drain/Check Valve Kit

## Hose and Fitting Kit

Part No.	Description
<b>CCV55024</b>	(1) 3/4" fitting, (1) 1" fitting, (1) 3/4" ID x 4' hose, (1) 1" ID x 4' hose, (4) clamps, (4) ties
<b>CCV55025</b>	(2) 1" fittings, (1) 1" ID x 8' hose, (4) clamps, (4) ties
<b>CCV55037</b>	(1) 1 1/4" fitting, (1) 1" fitting, (1) 1 1/4" ID x 4' hose, (1) 1" ID x 4' hose, (4) clamps, (4) ties
<b>CCV55038</b>	(1) 3/4" fitting, (1) 1" fitting, (1) 3/4" ID x 6' hose, (1) 3/4" Tee fitting, (1) 1" ID x 4' hose, (8) clamps, (8) ties

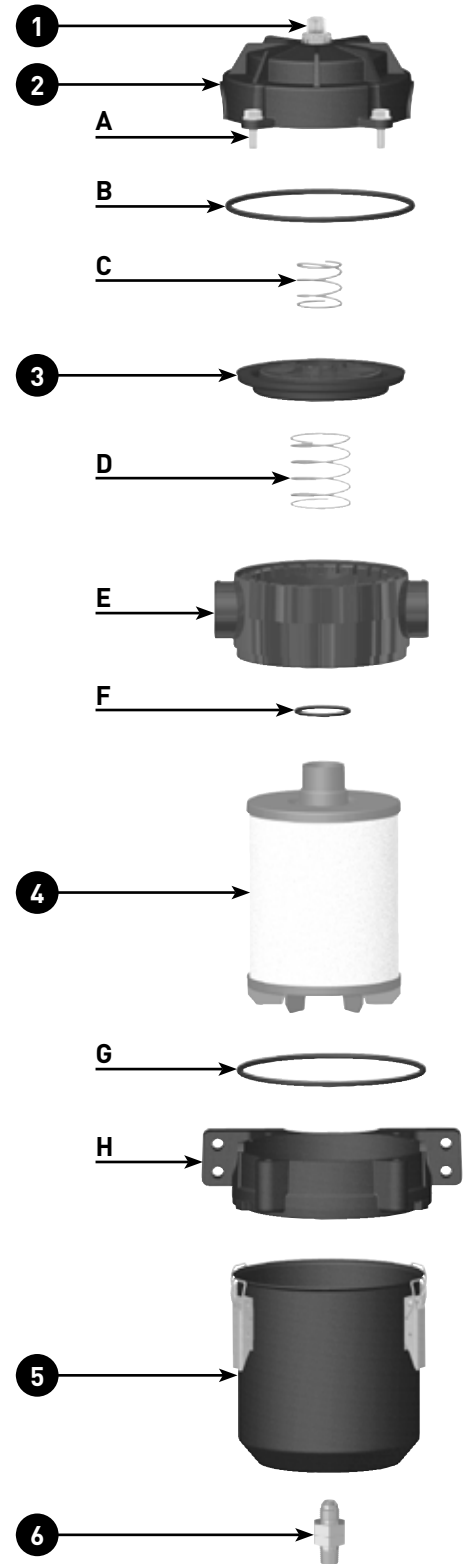
## Inlet/Outlet Fitting Kit

Part No.	Description
<b>CCV55250</b>	1" OD Hose Barb to 1 3/16" SAE Fitting
<b>CCV55251</b>	3/4" OD Hose Barb to 1 3/16" SAE fitting
<b>CCV55280</b>	1 1/4" OD Hose Barb to 1 3/16" SAE fitting



## CCV6000 Replacement Parts

Part No.	Description
1. <b>CCV55081</b>	Bypass Indicator Kit
2. <b>CCV55272L</b>	Head Assembly (Left Side Inlet) <i>(Kit includes 1, 3, A, B, C, D, E, and H)</i>
<b>CCV55272R</b>	Head Assembly (Right Side Inlet) <i>(Kit includes 1, 3, A, B, C, D, E, and H)</i>
3. <b>CCV55273</b>	Diaphragm Kit
4. <b>CCV55274-08</b>	Filter Replacement - High Density <i>(Kit includes F and G)</i>
<b>CCV55274-10</b>	Filter Replacement - Ultra Density <i>(Kit includes F and G)</i>
5. <b>CCV55275</b>	Can Assembly <i>(Kit includes G)</i>
6. <b>CCV55279</b>	1/4" MNPT Drain/Check Valve Kit



## Hose and Fitting Kit

Part No.	Description
<b>CCV55046</b>	(2) 1 1/4" fitting, (1) 1 1/4" ID x 8' hose, (4) clamps, (4) ties
<b>CCV55047</b>	(2) 1 1/4" fitting, (1) 1 1/4" Tee fitting, 1 1/4" ID x 10' hose, (8) clamps, (8) ties
<b>CCV55048</b>	(2) 1 1/4" fitting, (1) 1 1/2" ID x 4' hose, (1) bushing reducer, (1) 1 1/4" ID x 4' hose, (4) clamps, (4) ties
<b>CCV55049</b>	(2) 1 1/4" fitting, (1) 1 1/2" ID x 5' hose w/2" cuff, (1) bushing reducer, (1) 1 1/4" ID x 4' hose, (4) clamps, (4) ties

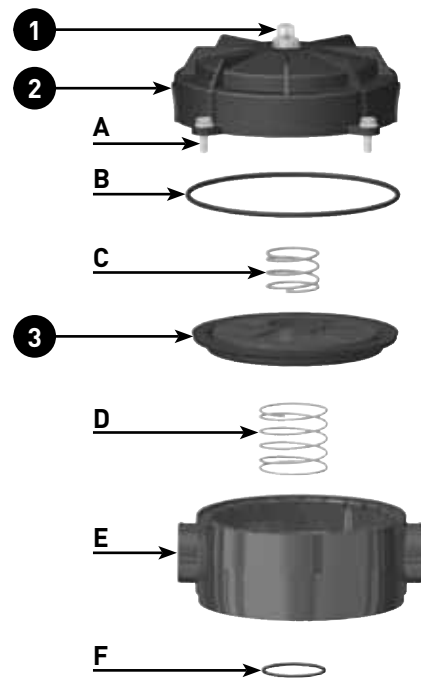
## Inlet/Outlet Fitting Kit

Part No.	Description
<b>CCV55267</b>	1 1/2" OD Hose Barb to 1 5/8" SAE Fitting



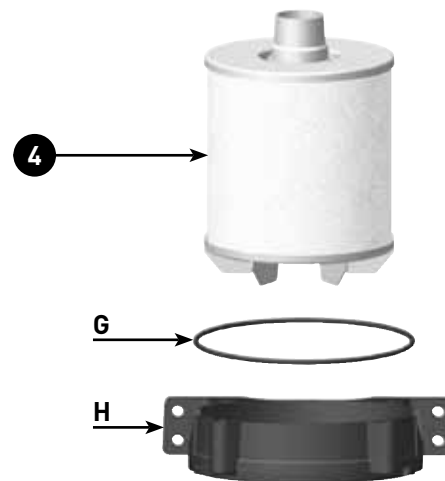
## CCV8000 Replacement Parts

Part No.	Description
1. CCV55081	Bypass Indicator Kit
2. CCV55220L CCV55220R	Head Assembly (Left Side Inlet) (Kit includes 1, 3, A, B, C, D, E, and H) Head Assembly (Right Side Inlet) (Kit includes 1, 3, A, B, C, D, E, and H)
3. CCV55221	Diaphragm Kit
4. CCV55222-08 CCV55222-08	Filter Replacement - High Density (Kit includes F and G) Filter Replacement - Ultra Density (Kit includes F and G)
5. CCV55223	Can Assembly (Kit includes G)
6. CCV55080	3/8" MNPT Drain/Check Valve Kit



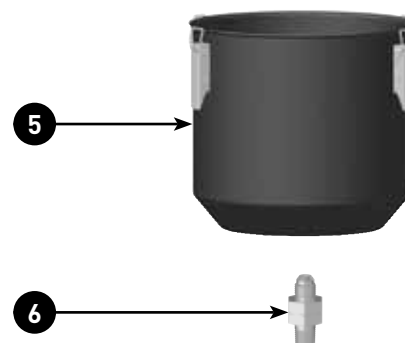
## Hose and Fitting Kit

Part No.	Description
CCV55067	(2) 1 1/2" fittings, (1) 1 1/2" ID x 10' hose, (1) bushing reducer, (4) clamps, (4) ties
CCV55068	(2) 1 1/2" fittings, (1) 1 1/2" Tee fitting, 1 1/2" ID x 12' hose, (2) bushing reducers, (8) clamps, (8) ties
CCV55069	(2) 1 1/2" fittings, (1) 1 1/2" ID x 5' hose w/2" cuff, (1) bushing reducer, (1) 1 1/2" ID x 5' hose, (4) clamps, (4) ties



## Inlet/Outlet Fitting Kit

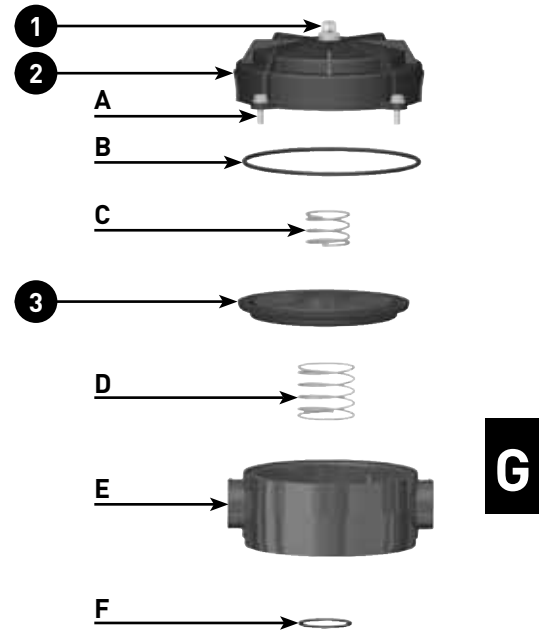
Part No.	Description
CCV55218	1 1/2" OD Hose Barb to 1 7/8" SAE Fitting





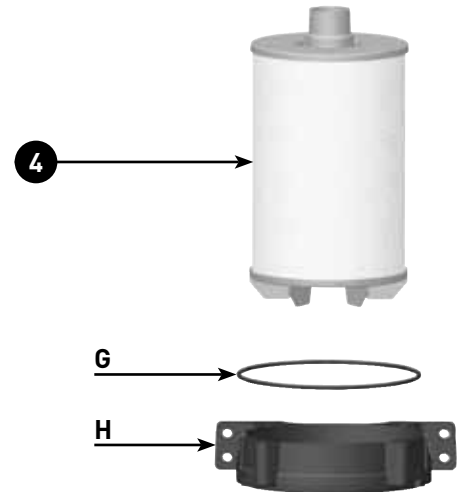
## CCV12000 Replacement Parts

Part No.	Description
1. <b>CCV55015</b>	Bypass Indicator Kit
2. <b>CCV55200L</b> <b>CCV55200R</b>	Head Assembly (Left Side Inlet) <i>(Kit includes 1, 3, A, B, C, D, E, and H)</i> Head Assembly (Right Side Inlet) <i>(Kit includes 1, 3, A, B, C, D, E, and H)</i>
3. <b>CCV55221</b>	Diaphragm Kit
4. <b>CCV55222-12</b> <b>CCV55222-12-10</b>	Filter Replacement - High Density <i>(Kit includes F and G)</i> Filter Replacement - Ultra Density <i>(Kit includes F and G)</i>
5. <b>CCV55570</b>	Can Assembly <i>(Kit includes G)</i>
6. <b>CCV55080</b>	3/8" MNPT Drain/Check Valve Kit



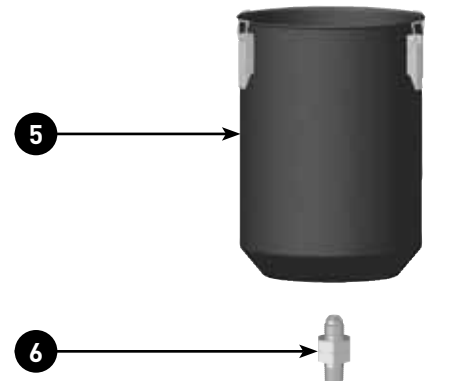
## Hose and Fitting Kit

Part No.	Description
<b>CCV55067</b>	(2) 1 1/2" fittings, (1) 1 1/2" ID x 10' hose, (1) bushing reducer, (4) clamps, (4) ties
<b>CCV55068</b>	(2) 1 1/2" fittings, (1) 1 1/2" Tee fitting, 1 1/2" ID x 12' hose, (2) bushing reducers, (8) clamps, (8) ties
<b>CCV55069</b>	(2) 1 1/2" fittings, (1) 1 1/2" ID x 5' hose w/2" cuff, (1) bushing reducer, (1) 1 1/2" ID x 5' hose, (4) clamps, (4) ties



## Inlet/Outlet Fitting Kit

Part No.	Description
<b>CCV55218</b>	1 1/2" OD Hose Barb to 1 7/8" SAE Fitting



## Open Crankcase Ventilation (CV)

Choose left or right-hand inlet.

High-efficiency oil separation to 0.3 micron.

Stainless steel latches for tool-less filter change.

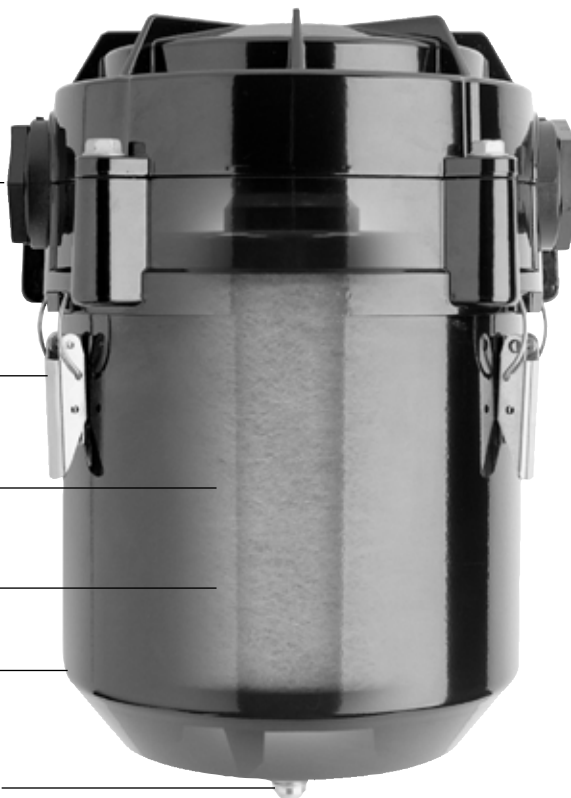
Replaceable high-performance filter with depth-loading, micro-glass fiber coalescing media.

Extended filter service interval from the Vaporbloc™ element.

Steel housing with epoxy powder coating.

Drain check valve allows collected oil to return to crankcase. This eliminates frequent draining and significantly reduces oil consumption.

Continuous operating temperature range is -40°F to +240°F (-40°C to 116°C).



In an open system, the crankcase breather is connected to the Crankcase Ventilation (CV) filter assembly. The CV outlet is open to atmosphere. This configuration is simple to install and is an effective oil mist removal system for applications which allow crankcase venting to atmosphere. There may be some visible blow-by gases present from the CV outlet.

The only routine maintenance required for the CV system is filter replacement. Typical service life of the high-performance filter in diesel applications is 750 hours. Variations in service life occur depending on load profile, engine wear condition, flow and aerosol mass concentration of crankcase emissions, and soot concentration.

CV units are designed to handle various crankcase flow rates up to 50 CFM. Traditionally, the crankcase flow rate can be calculated as follows: rated horsepower ÷ 20 = cubic feet per minute (CFM). This formula can only be used as a guide. The blow-by flow rate of a worn engine, at time of overhaul, is generally double the flow rate when the engine is new. The flow rate of a worn engine is factored into the formula. Note: Specify left or right-hand inlet when ordering.



## CV Specifications

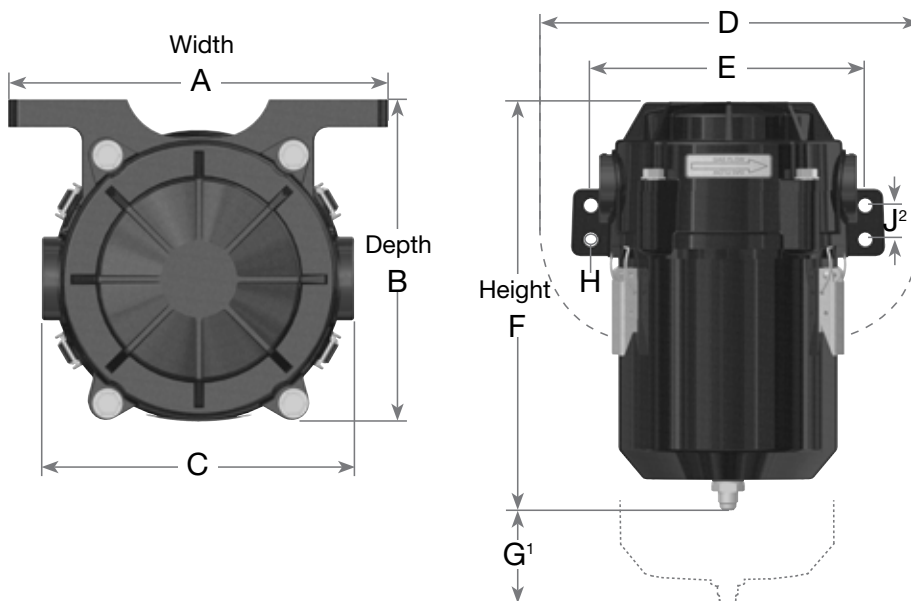


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	CV4501	CV6001	CV8001	CV12001
<b>Max. Engine Rating</b>	400 HP (298 KW)	800 HP (597 KW)	1600 HP (1193 KW)	2000 HP (1491 KW)
<b>Max. Flow Rate</b>	10 CFM (283 LM)	20 CFM (566 LM)	40 CFM (1133 LM)	50 CFM (1416 LM)
<b>Inlet/Outlet Port Size</b>	1 3/16"-12 STOR	1 5/8"-12 STOR	1 7/8"-12 STOR	1 7/8"-12 STOR
<b>Weight</b>	3.3 lbs (1.5 kg)	5.0 lbs (2.3 kg)	8.7 lbs (3.9 kg)	9.3 lbs (4.2 kg)
<b>High Density Filter Replacement</b>	CCV55248-08	CCV55274-08	CCV55222-08	CCV55222-12-08
<b>Pressure Regulator</b>	Integral	Integral	Integral	Integral
<b>Check Valve Return Fitting</b>	1/4" NPT	1/4" NPT	1/4" NPT	3/8" NPT
<b>Swivel Fitting (Qty.)</b>	#6 JIC (2 pcs.)	#6 JIC (2 pcs.)	#8 JIC (2 pcs.)	#8 JIC (2 pcs.)
<b>Oil Drain Hose I.D.</b>	0.375 in. (0.95 cm)	0.375 in. (0.95 cm)	0.5 in. (1.27 cm)	0.5 in. (1.27 cm)

*\*\*Units can be manifolded to handle higher flow rates.*

## CV Dimensions



Dimension	4501 Series		6001 Series		8001 Series		12001 Series	
	IN	CM	IN	CM	IN	CM	IN	CM
<b>A</b>	7.2	18.3	8.6	21.8	10.6	26.9	10.6	26.9
<b>B</b>	5.6	14.2	7.3	18.5	9.3	23.6	9.3	23.6
<b>C</b>	5.6	14.2	7.1	18.0	9.1	23.1	9.1	23.1
<b>D</b>	7.5	19.1	11.3	28.7	13.3	33.8	13.3	33.8
<b>E</b>	6.0	15.2	7.5	19.1	9.5	24.1	9.5	24.1
<b>F</b>	8.6	21.8	11.3	28.7	13.2	33.5	17.3	43.9
<b>G¹</b>	2.3	5.7	4.0	10.1	5.0	12.7	6.0	15.2
<b>H</b>	0.43	1.09	0.37	0.94	0.43	1.09	0.43	1.09
<b>J²</b>	N/A	N/A	0.93	2.4	1.06	2.7	1.06	2.7

<sup>1</sup> Dimension "G" is the minimum filter removal clearance - allow more room if possible for ease of service.

<sup>2</sup> Dimension "J" is not applicable on CV4501 assemblies because there are only two (2) mounting holes. All other units have four (4) mounting holes.

## How To Order CV Systems

(The diagram below illustrates how part numbers are constructed)

# C V X X D B - Y Y Z

**“XX” Unit Size**  
 45 = 10 CFM max  
 60 = 20 CFM max  
 80 = 40 CFM max  
 120 = 50 CFM max

**“D” Duty Cycle**  
 0 = Continuous Operation

**“B” Bypass**  
 1 = No internal bypass

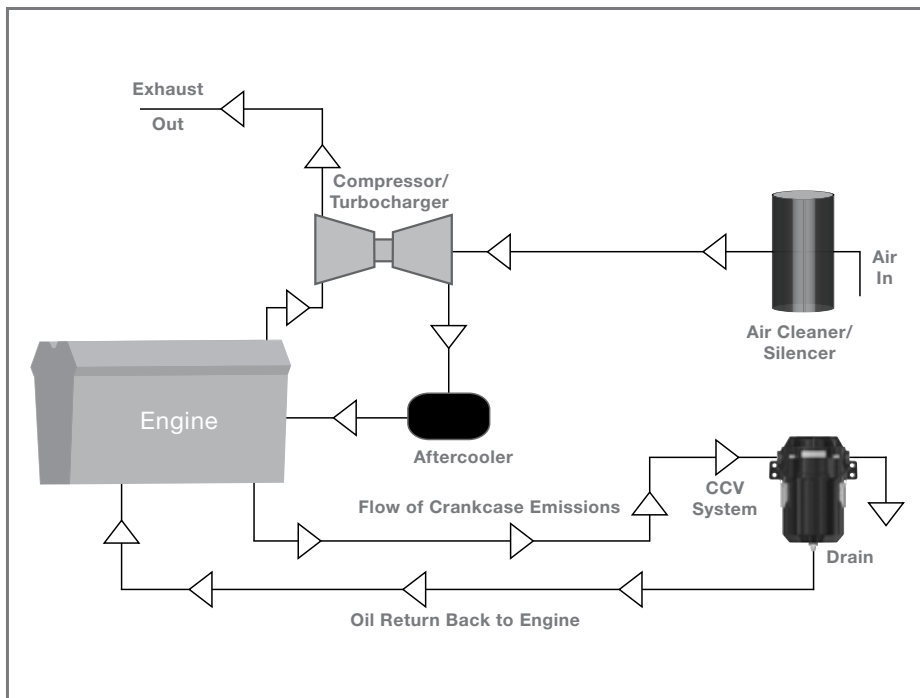
**“YY” Media**  
 -08 = High efficiency

**“Z” Inlet Orientation**  
 L = Left side  
 R = Right side



Example: CV4501-08L

## CV System Flow



## CV Hose and Fitting Kits

### CV4501 Series Assemblies

Part No.	Description
<b>CCV55024</b>	(1) 3/4" fitting, (1) 1" fitting, (1) 3/4" ID x 4 foot long hose, (1) 1" ID x 4 foot long hose, (4) clamps and (4) ties
<b>CCV55025</b>	(2) 1" fittings, (1) 1" ID x 8 foot long hose, (4) clamps and (4) ties
<b>CCV55037</b>	(1) 1-1/4" fitting, (1) 1" fitting, (1) 1-1/4" ID x 4 foot long hose, (1) 1" ID x 4 foot long hose, (4) clamps and (4) ties
<b>CCV55038</b>	(1) 3/4" fitting, (1) 1" fitting, (1) 3/4" ID x 6 foot long hose, (1) 3/4" Tee fitting, (1) 1" ID x 4 foot long hose, (8) clamps and (8) ties

### CV6001 Series Assemblies

Part No.	Description
<b>CCV55046</b>	(2) 1-1/4" fittings, (1) 1-1/4" ID x 8 foot long hose, (4) clamps and (4) ties
<b>CCV55047</b>	(2) 1-1/4" fittings, (1) 1-1/4" Tee fitting, (1) 1-1/4" ID x 10 foot long hose, (8) clamps and (8) ties
<b>CCV55048</b>	(2) 1-1/4" fittings, (1) 1-1/2" ID x 4 foot long hose, (1) bushing reducer, (1) 1-1/4" ID x 4 foot long hose, (4) clamps and (4) ties
<b>CCV55049</b>	(2) 1-1/4" fittings, (1) 1-1/2" ID x 5 foot long hose w/2" cuff, (1) bushing reducer, (1) 1-1/4" ID x 4 foot long hose, (4) clamps and (4) ties

### CV8001 and CV12001 Series Assemblies

Part No.	Description
<b>CCV55067</b>	(2) 1-1/2" fittings, (1) 1-1/2" ID x 10 foot long hose, (1) bushing reducer, (4) clamps and (4) ties
<b>CCV55068</b>	(2) 1-1/2" fittings, (1) 1-1/2" Tee fitting, (1) 1-1/2" ID x 12 foot long hose, (2) bushing reducers, (8) clamps and (8) ties
<b>CCV55069</b>	(2) 1-1/2" fittings, (1) 1-1/2" ID x 5 foot long hose w/2" cuff, (1) bushing reducer, (1) 1-1/2" ID x 5 foot long hose, (4) clamps and (4) ties



Hose and fitting kits include inlet and outlet fittings and enough hose for a typical installation of a CV assembly. CV assemblies require special fittings only available from Racor. Hose and fitting kits are available in various sizes and configurations.

### Bulk Drain Hose

Part No.	Push-Lok Hose Size
<b>CCV836-6-25</b>	3/8 I.D., 25' Roll
<b>CCV836-6-50</b>	3/8 I.D., 50' Roll
<b>CCV836-8-25</b>	1/2 I.D., 25' Roll
<b>CCV836-8-50</b>	1/2 I.D., 50' Roll

### Inlet/Outlet Hose

(available by the foot)

Part No.	Corrugated Hose Size (I.D.)
<b>CV1034-01</b>	3/4"
<b>CV1100-01</b>	1"
<b>CV1114-01</b>	1 1/4"
<b>CV1112-01</b>	1 1/2"

### Hump Hose Fittings

These are designed to be used with existing air cleaner to turbo rubber adapters.

Part No.	Hose
<b>CCV55540</b>	0.75"
<b>CCV55113</b>	1.0"
<b>CCV55114</b>	1.25"
<b>CCV55115</b>	1.5"

# CV Accessories

## Electronic Remote Filter Gauge



The CCV55615-01 Lightbox Kit is designed to inform the user that the filter being monitored has become restricted.

During normal vehicle operation, the green light stays illuminated indicating the filter is performing properly. The red light illuminates when the filter becomes restricted and stays on until the engine is shut down. The light box is reset when the engine is shut down and the red light will not illuminate until filter restriction is again seen in the system.

### Product Features:

- Constant monitoring of filter condition while engine is on
- 12Vdc operating supply voltage
- Operating temperature: -40°F to +257°F (-40°C to +125°C)
- 5 amp max current draw
- Filter switch threads are 3/8"-24 straight thread
- Rugged construction
- Filter switch closure at 8 inches of water
- Green and red light illumination to show filter condition



### Remote Filter Gauge

Part Number: CCV55012

This Filter Minder was designed to inform the user that the filter being monitored has become restricted.

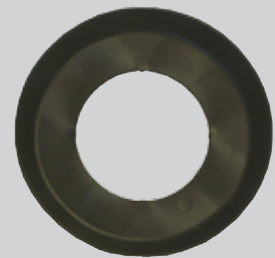
Included in Kit:  
Gauge & Bracket (Shown), 1/8"-27 NPT Fitting with Internal 40 micron filter and 10 FT of 1/4" OD EPDM hose.



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### Heavy-Duty Wear Spacers

These Heavy-Duty Spacers are an optional accessory for engine applications/installations that have excessive vibration. Excessive vibration causes abnormal wear on the CV/CCV assembly and could compromise integrity. The spacer is placed in the CV/CCV canister, below the filter, protecting the assembly from vibration and wear by cradling the filter.



CCV Unit	Spacer Number
CCV4500	CCV55390
CCV6000	CCV55385
CCV8000	CCV55374
CCV12000	CCV55374

# Inlet/Outlet Hose Barbs



<b>CV Assembly</b>	<b>Hose Barb Part No.</b>	<b>Size</b>
<b>CV4501</b>	CCV55251	0.75"
<b>CV4501</b>	CCV55250	1"
<b>CV4501</b>	CCV55280	1.25"
<b>CV6001</b>	CCV55089	0.75"
<b>CV6001</b>	CCV55268	1.25"
<b>CV6001</b>	CCV55121	1.25" (90°)
<b>CV6001</b>	CCV55267	1.5"
<b>CV8001/CV12001</b>	CCV55218	1.5"

# 90° Hose Adapters

<b>Part No.</b>	<b>CCV55121</b>
<b>Use with Model</b>	CV6001
<b>Hose Size</b>	1-1/4" I.D.



<b>Part No.</b>	<b>CCV55547-02</b>
<b>Use with Model</b>	CV4501



<b>Part No.</b>	<b>CCV55547-10</b>
<b>Use with Model</b>	CV8001



## CV Conversion Kit

Part Number:  
CCV55613-08 (High Density)  
CCV55613-10 (Ultra Density)

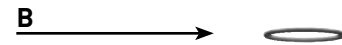
The CCV55613-08 and CCV55613-10 allow the CV8001 to be converted to a CV12001. The CV12001 series offers 60% additional media. The CV12001 series is great for applications where extra capacity is desired and immediate engine accessibility is not available. It allows for increased efficiency and longer service intervals. Kit includes element, wear spacer, o-rings, and CV12001 bowl.





## CV4501 Replacement Parts

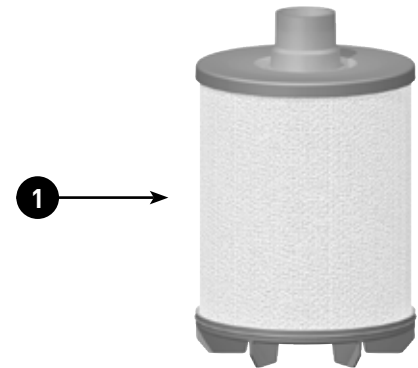
Part No.	Description
1. <b>CCV55248-04</b> <b>CCV55248-08</b> <b>CCV55248-10</b>	Replacement Filter - Low Density Replacement Filter - High Density Replacement Filter - Ultra Density (All filters include B and C)
2. <b>CCV55080</b>	3/8" MNPT Drain/Check Valve Kit



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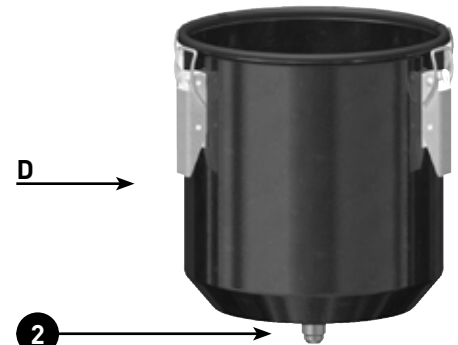
## CV6001 Replacement Parts

Part No.	Description
1. <b>CCV55274-08</b> <b>CCV55274-10</b>	Replacement Filter - High Density Replacement Filter - Ultra Density (All filters include B and C)
2. <b>CCV55279</b>	3/8" MNPT Drain/Check Valve Kit



## CV8001 Replacement Parts

Part No.	Description
1. <b>CCV55222-08</b> <b>CCV55222-10</b>	Replacement Filter - High Density Replacement Filter - Ultra Density (All filters include B and C)
2. <b>CCV55080</b>	3/8" MNPT Drain/Check Valve Kit



(CV6001 Shown)

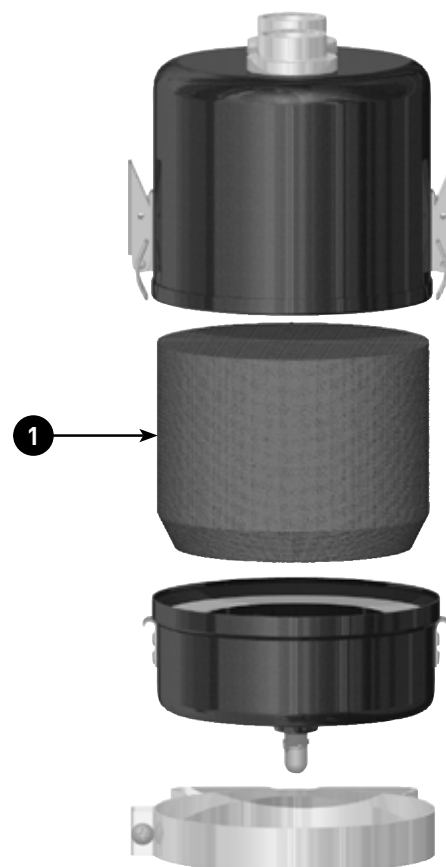
## CV12001 Replacement Parts

Part No.	Description
1. <b>CCV55222-12-08</b> <b>CCV55222-12-10</b>	Replacement Filter - High Density Replacement Filter - Ultra Density (All filters include B and C)
2. <b>CCV55080</b>	3/8" MNPT Drain/Check Valve Kit

## Discontinued Assemblies



	CV820	CV1000
<b>Max. Engine Horsepower Rating</b>	0-350 HP (0-261 KW)	350-600 HP (261-447 KW)
<b>Inlet/Outlet Port Size</b>	1" NPT	1 1/4" NPT
<b>Max. Air Flow</b>	10 CFM (0.28 CMM)	15 CFM (0.42 CMM)
<b>Replacement Filter</b>	CV820SK	CV1000SK
<b>Height</b>	7.5 in. (19.1 cm)	8.5 in. (21.6 cm)
<b>Diameter</b>	6.0 in. (15.2 cm)	8.1 in. (20.6 cm)
<b>Weight (dry)</b>	2.0 lbs (0.9 kg)	3.0 lbs (1.4 kg)
<b>Sump Capacity</b>	32 oz (0.94 L)	58 oz (1.72 L)
<b>Operating Temp.</b>	-40o to +255o F (-40o to +121o C)	



Part No.	Description
1. CV820SK	Replacement Filter For CV820
CV1000SK	Replacement Filter For CV1000

CV820 and CV1000 assemblies are discontinued but the replacement filter (see item#1) is still available.

**Note:**To replace housing seal, order part number 3HCG6 from grainger.com

**Note:**The housing gasket, part number CV1000-04, is obsolete. Purchase 3HCG6 gasket material from grainger.com to make a replacement seal.

## Hose & Fitting Kits

Part No.	Description
CV1100	5 feet of 1" hose, fittings, clamps and ties
CV2114	7 1/2 feet of 1 1/4" hose, 1 1/4" Tee fitting, fitting, clamps and ties
CV1200	5 feet of 1 1/2" hose with 2" cuff, fitting, clamps and ties

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