



Filtration



FFC-110L



FFC-113



FFC-112

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Alternative Fuel Filtration Systems

Model	Fuel Types	Filter Type	Pressure PSI	Flow Rate SCFM	Port Sizes	Page
FFC-110	CNG, LPG	Coalescer	500	25	1/4" NPT	232, 234
FFC-110L	CNG, LNG, LPG	Coalescer	500	50	1/2" NPT	232, 234
FFC-112	CNG	Coalescer	3600	15	1/4" NPT	232, 235
FFC-112-SAE	CNG	Coalescer	3600	15	9/16" SAE	232, 235
FFC-113	CNG, LNG	Coalescer	3600	50	1/2" NPT	232, 236
FFC-113-NF	CNG, LNG	Coalescer	3600	50	3/4" SAE	233, 236
FFC-114	CNG, LNG	Coalescer	3600	50	1/2" NPT	233, 237
FFC-114-NF	CNG, LNG	Coalescer	3600	50	3/4" SAE	233, 237
FFC-115	LNG	Coalescer	3600	60	1" NPT	233, 238
FFC-116	CNG	Coalescer	5000	8.4	1/4" NPT	233, 239
FFC-119	LPG	Prefilter/Strainer	500	N/A	1/4" Inlet 5/8" Outlet	233, 240

Selection

General

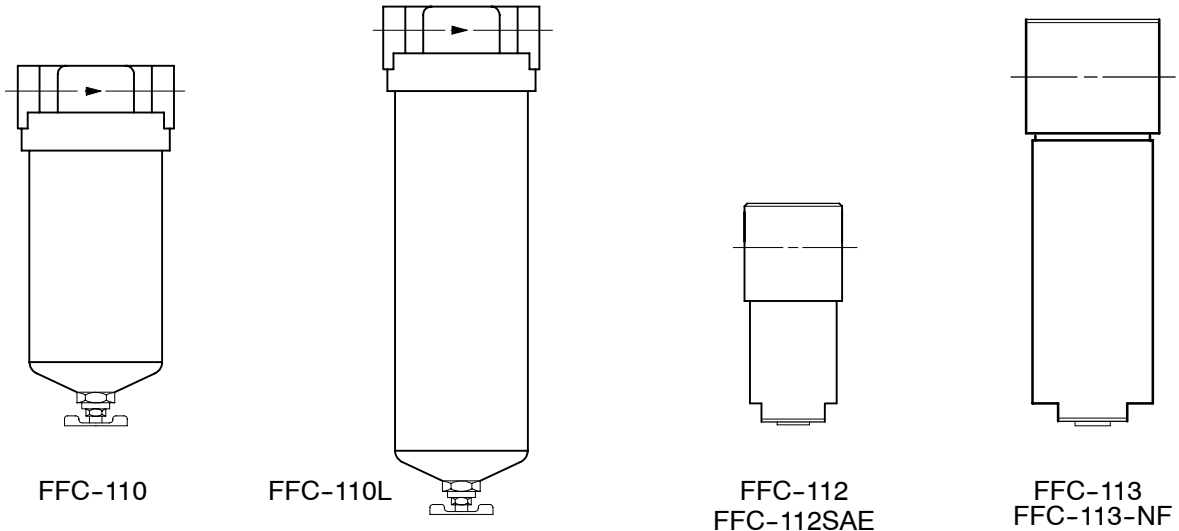
Racor Alternative Fuel Filtration products are designed to protect critical engine components in compressed natural gas (CNG), liquid natural gas (LNG) and liquid propane gas (LPG) powered vehicles. Contaminants can be introduced into the vehicle's fuel tank when being fueled. Contaminants may come from CNG compressors and storage facilities. These units are specifically designed to remove oil, water and solid contamination from compressed natural gas. The special coalescing filters remove over 95% of all aerosols in the 0.3 to 0.6 micron range.

1. DETERMINE THE ALTERNATE FUEL TO BE FILTERED: CNG, LNG OR LPG.
2. DETERMINE THE SYSTEM PRESSURE FOR THE MOUNTING LOCATION.
The pressure may be found by contacting the vehicle or engine manufacturer.
To convert kilopascals (kPa) to PSI, divide kPa by 6.8947.
3. DETERMINE THE SYSTEM FLOW RATE IN SCFM*.
The flow rate may be found by contacting the vehicle or engine manufacturer.
**(Standard Cubic Feet per Minute or SCFM, calculated at 100 PSIG).
To convert liters per minute (LPM) to SCFM, multiply LPM by .0353).
To convert pounds per hour (PPH) to SCFM, divide PPH by 60 and then divide by .0447.*

Using this information, select a unit for service from this page that suits your application and fits within installation size limitations (if any).

Alternative Fuel Filtration Systems

Model Illustrations



Special Notes

1. **TO SELECT THE RIGHT FILTER FOR YOUR APPLICATION, SEE THE PREVIOUS PAGE.**
2. The Model FFC-112 is Listed in accordance with AGA1-85 by the American Gas Association Laboratories.
3. For additional information, contact customer service at: (800) 344-3286, 6 AM to 5 PM, Pacific Time.

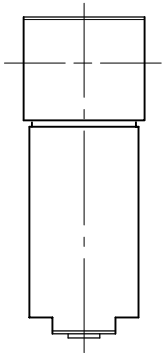
Specifications

Model FFC-112 is
American Gas Association
Laboratories Listed

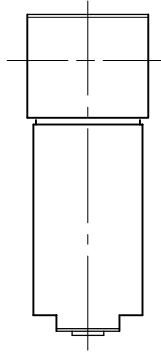


BASIC MODELS		FFC-110	FFC-110L	FFC-112	FFC-112-SAE	FFC-113
Fuels		CNG, LPG	CNG, LNG, LPG	CNG	CNG	CNG, LNG
Filter Type		Coalescer	Coalescer	Coalescer	Coalescer	Coalescer
Operating Pressure, Max.	PSI kPa	500 3,447	500 3,447	3,600 24,800	3,600 24,800	3,600 24,800
Maximum Flow Rate	SCFM lpm	25 708	50 1,416	15 425	15 425	50 1,416
Port Size, NPT (SAEJ476)		1/4" NPT	1/2" NPT	1/4" NPT	9/16"-18 SAE	1/2" NPT
Filter Element		CLS110-10	CLS110-10L	CLS112-10	CLS112-10	CLS113-6
Length	in. mm	7.16 182	10.40 264	4.75 121	4.75 121	8.03 204
Diameter	in. mm	3.13 80	3.13 80	2.25 57	2.25 57	2.97 75
Weight (dry)	Lbs. kgs.	1.5 0.68	1.8 0.82	1.5 0.68	1.5 0.68	5.5 2.49
Clean Pressure Drop	PSID kPa	1.00 6.9	1.00 6.9	3.0 20.7	3.0 20.7	1.7 11.7
Sump Capacity	ounces cc's	5.0 148	7.0 207	0.5 15	0.5 15	5.0 148
Operating Temperature		-40° / +225° F / -40° / +107° C				

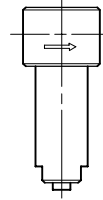
1. For accurate flow rates and pressures consult your engine manual, engine manufacturer's agent or the vehicle manufacturer.



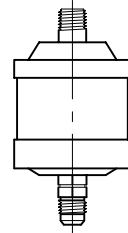
FFC-114
FFC-114-NF



FFC-115



FFC-116



FFC-119

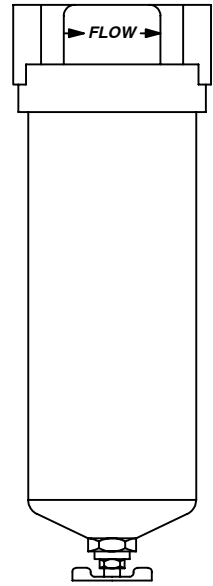
Specifications - continued

BASIC MODELS		FFC-113-NF	FFC-114	FFC-114-NF	FFC-115	FFC-116	FFC-119
Fuels		CNG, LNG	CNG, LPG	CNG, LPG	LNG	CNG	LPG
Filter Type		Coalescer	Coalescer	Coalescer	Coalescer	Coalescer	Prefilter/strainer
Operating Pressure, Max.	PSI kPa	3,600 24,800	3,600 24,800	3,600 24,800	3,600 24,800	5,000 34,480	500 3,447
Maximum Flow Rate	SCFM lpm	50 1,416	50 1,416	50 1,416	60 1,700	8.4 238	N/A
Port Size, NPT (SAEJ476)		3/4" SAE	1/2" NPT	3/4" SAE	1" NPT	1/4" NPT	1/4" NPT 5/8" outlet
Filter Element		CLS113-6	CLS113-6	CLS113-6	CLS113-6	CLS116-10	N/A
Length	in. mm	8.03 204	6.98 177	6.98 177	6.98 177	3.85 97	4.87 124
Diameter	in. mm	2.97 75	2.97 75	2.97 75	3.15 80	1.75 44	2.63 67
Weight (dry)	Lbs. kgs.	5.5 2.49	5.25 2.3	5.25 2.3	6.0 2.7	1.75 0.79	0.5 0.23
Clean Pressure Drop	PSID kPa	1.7 11.7	1.7 11.7	1.7 11.7	1.7 11.7	1.25 8.6	N/A
Sump Capacity	ounces cc's	5.0 148	3.0 88	3.0 88	3.0 88	0.25 7.4	N/A
Operating Temperature		-40° / +225° F / -40° / +107° C					

1. For accurate flow rates and pressures consult your engine manual, engine manufacturer's agent or the vehicle manufacturer.
2. Some specifications are the result of tests conducted at the optimum flow rate.

SPECIFICATIONS are found on Alternative Fuel Filtration introduction page.

FFC-110	FEATURES
<p>FFC-110: 25 SCFM/500 PSI Coalescer. Black powder coating on 380 aluminum head and 6061 cannister with standard 1/4" NPTF ports and standard Grade 10 element.</p> <p>FFC-110L: 50 SCFM/500 PSI</p>	<ul style="list-style-type: none"> - For use with CNG, LPG (FCC-110L: also LNG). - Durable construction and simple servicing. - Small size allows for installation versatility. - Patented filter removes over 95% of all aerosols in the 0.3 to 0.6 micron range. - FFC-110 sump capacity = 5 oz. (148 cc) FFC-110L sump capacity = 7.0 oz. (207 cc) of fluid contaminants. - Assemblies are powder painted for long term corrosion protection.

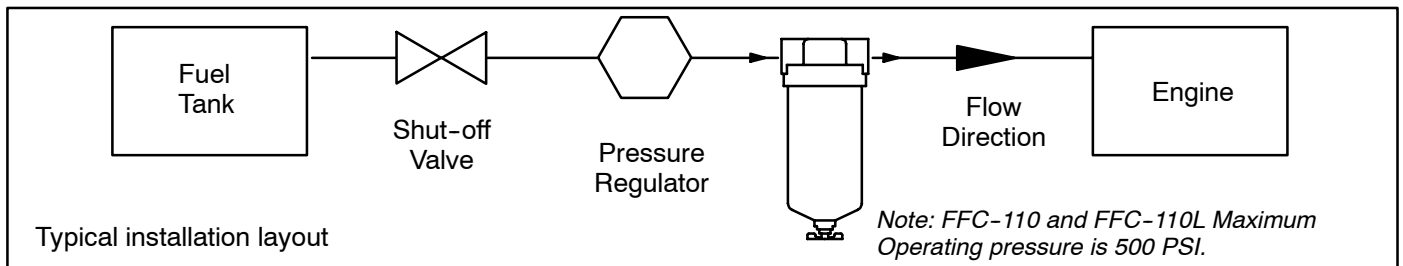


FFC-110L

Replacement Coalescing Service Elements

FFC-110	FFC-110L
CLS110-04 Grade 4, element	CLS110L-04 Grade 4, element
CLS110-3M 3 micron element	CLS110L-3M 3 micron element
CLS110-06 Grade 6, element	CLS110L-06 Grade 6, element
CLS110-10 Grade 10, element	CLS110L-10 Grade 10, element

Installation Diagram / Dimensional Layout



FFC-110:
Inlet and outlet ports are: 1/4"-18 NPTF (SAEJ476)

FFC-110L:
Inlet and outlet ports are: 1/2"-14 NPTF (SAEJ476)

FFC-110: 7.92" (201 mm)
FFC-110L: 10.4" (264 mm)

Installation Note
The unit should be located in an accessible and protected location for easy servicing. Use connectors approved by the American Gas Association and the Department of Transportation. Test the installation for leaks using an approved leak detection fluid.

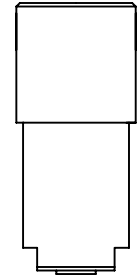
Service Note Caution:
The unit must not be under pressure during servicing. Injury to personnel may result. Close the shut-off valve shown in the illustration above and slowly relieve line pressure before attempting service.

Replacing the Element
Change the element at the same time as engine oil filter changes or at least every 3,000 miles.

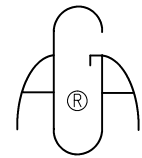
Draining the Housing
Drain the housing every 1,500 miles or as necessary. With line pressure relieved, open valve and drain until liquid is removed, then close the valve.

SPECIFICATIONS are found on Alternative Fuel Filtration introduction page.

FFC-112	FEATURES
<p>FFC-112: 15 SCFM/3,600 PSI, Coalescer. Black anodized coating on 6061-T6 aluminum head and cannister with standard 1/4" NPTF ports and Grade 10 element.</p> <p>FFC-112-SAE: 9/16"-18 SAE ports.</p>	<ul style="list-style-type: none"> - For use with CNG systems. - Listed with the American Gas Association. - Durable construction and simple servicing. - Small size allows for installation versatility. - Patented filter removes over 95% of all aerosols in the 0.3 to 0.6 micron range. - Sump capacity up to .5 oz. (15 cc) of contaminants. - Maximum burst pressure of 15,000 PSI.



FFC-112
FFC-112-SAE

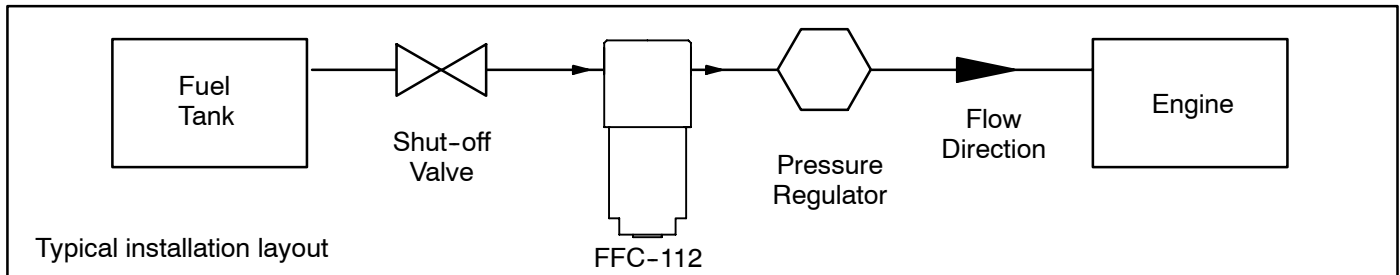


American Gas Association
Laboratories Listed

Replacement Service Element

CLS112-10	Grade 10, coalescing service element
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Installation Diagram / Dimensional Layout



FFC-112:
Head is 2.25" (57 mm) diameter.
Inlet and outlet ports are: 1/4"-18 NPTF (SAEJ476)

FFC-112-SAE:
Inlet and outlet ports are: 9/16"-18 SAE O-ring ports (SAEJ1926)

Maintain at least 3" (76 mm) of clearance below the unit for element access.

Installation Note

The unit should be located in an accessible and protected location for easy servicing. Use connectors approved by the American Gas Association and the Department of Transportation. Maintain at least 3" (76 mm) of clearance below the unit for element access. Test the installation for leaks using an approved leak detection fluid.

Service Note Caution:

The unit must not be under pressure during servicing. Injury to personnel may result. Close the shut-off valve shown in the illustration above and slowly relieve line pressure before attempting service.

Replacing the Element

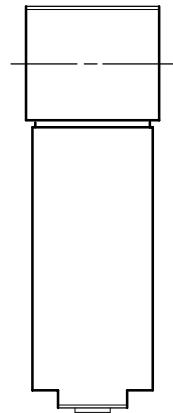
Change the element at the same time as engine oil filter changes or at least every 3,000 miles.

Draining the Housing

Drain the housing every 1,500 miles or as necessary. With line pressure relieved, remove the drain plug using a 1/4" Allen wrench, then replace the plug.

SPECIFICATIONS are found on Alternative Fuel Filtration introduction page.

FFC-113	FEATURES
<p>Basic Model 50 SCFM/3,600 PSI Coalescer. 303 stainless steel construction with standard 1/2" NPTF ports and Grade 6 element. FFC-113-NF is standard with 3/4" SAE ports.</p>	<ul style="list-style-type: none"> - For use with CNG and medium flow LNG systems. - Durable construction and simple servicing. - Small size allows for installation versatility. - Patented filter removes over 95% of all aerosols in the 0.3 to 0.6 micron range. - Sump capacity up to 5 oz. (148 cc) of fluid contaminants. - By-pass feature allows continuous operation to prevent increased system restriction.

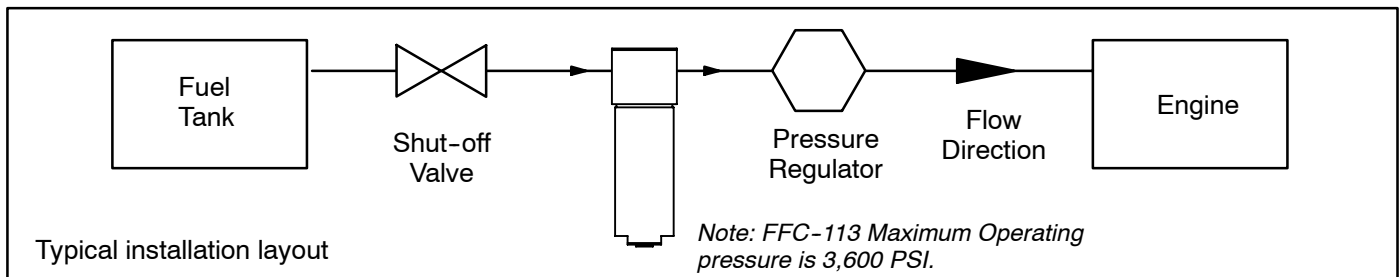


Replacement Service Element

CLS113-6 Grade 6, coalescing service element

FFC-113
FFC-113-NF

Installation Diagram / Dimensional Layout



FFC-113
 Head is 2.97" (75 mm) diameter.
 Inlet and Outlet ports are: 1/2"-14 NPTF (SAEJ476)

FFC-113-NF
 Head is 2.97" (75 mm) diameter.
 Inlet and Outlet ports are: 3/4" SAE

Installation Note
 The unit should be located in an accessible and protected location for easy servicing. Use connectors approved by the American Gas Association and the Department of Transportation. Test the installation for leaks using an approved leak detection fluid.

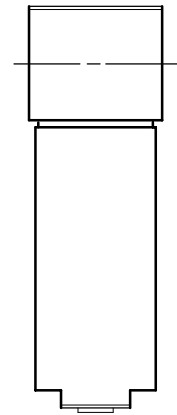
Service Note Caution:
 The unit must not be under pressure during servicing. Injury to personnel may result. Close the shut-off valve shown in the illustration above and slowly relieve line pressure before attempting service.

Replacing the Element
 Change the element at the same time as engine oil filter changes or at least every 3,000 miles.

Draining the Housing
 Drain the housing every 1,500 miles or as necessary. With line pressure relieved, open valve and drain until liquid is removed, then close the valve.

SPECIFICATIONS are found on Alternative Fuel Filtration introduction page.

FFC-114	FEATURES
<p><u>Basic Model</u> 50 SCFM/3,600 PSI Coalescer. 303 stainless steel construction with standard 1/2" NPTF ports and Grade 6 element. FFC-114-NF is standard with 3/4" SAE ports.</p>	<ul style="list-style-type: none"> - For use with CNG and medium flow LPG systems. - Durable construction and simple servicing. - Small size allows for installation versatility. - Patented filter removes over 95% of all aerosols in the 0.3 to 0.6 micron range. - Sump capacity up to 3 oz. (88 cc) of fluid contaminants. - Stainless steel for superior corrosion resistance. - By-pass feature allows continuous operation to prevent increased system restriction.

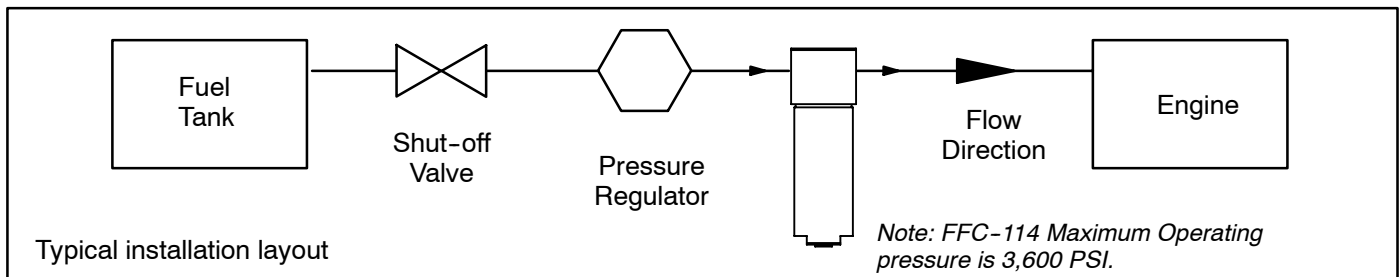


FFC-114
FFC-114-NF

Replacement Service Element

CLS113-6 Grade 6, coalescing service element

Installation Diagram / Dimensional Layout



FFC-114 3/8"-16 SAE (2)
Head is 2.97" (75 mm) diameter.
Inlet and Outlet ports are: 1/2"-14 NPTF (SAEJ476)

1.38" (35 mm)
2.63" (67 mm)

FFC-114-NF
Head is 2.97" (75 mm) diameter.
Inlet and Outlet ports are: 3/4" SAE

2.97" (75 mm)
6.98" (177 mm)
Drain

Installation Note
The unit should be located in an accessible and protected location for easy servicing. Use connectors approved by the American Gas Association and the Department of Transportation. Test the installation for leaks using an approved leak detection fluid.

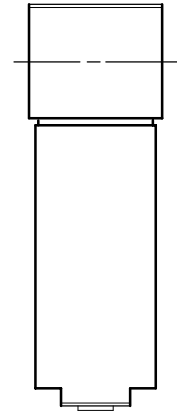
Service Note Caution:
The unit must not be under pressure during servicing. Injury to personnel may result. Close the shut-off valve shown in the illustration above and slowly relieve line pressure before attempting service.

Replacing the Element
Change the element at the same time as engine oil filter changes or at least every 3,000 miles.

Draining the Housing
Drain the housing every 1,500 miles or as necessary. With line pressure relieved, open valve and drain until liquid is removed, then close the valve.

SPECIFICATIONS are found on Alternative Fuel Filtration introduction page.

FFC-115	FEATURES
<p><u>Basic Model</u> 60 SCFM/3,600 PSI Coalescer. 303 stainless steel construction with standard 1" NPTF ports and Grade 6 element.</p>	<ul style="list-style-type: none"> - For use with medium to high flow rate LNG systems. - Durable construction and simple servicing. - Small size allows for installation versatility. - Patented filter removes over 95% of all aerosols in the 0.3 to 0.6 micron range. - Sump capacity up to 3 oz. (88 cc) of fluid contaminants. - Assembly is stainless steel for long term corrosion resistance. - By-pass feature allows continuous operation to prevent increased system restriction.

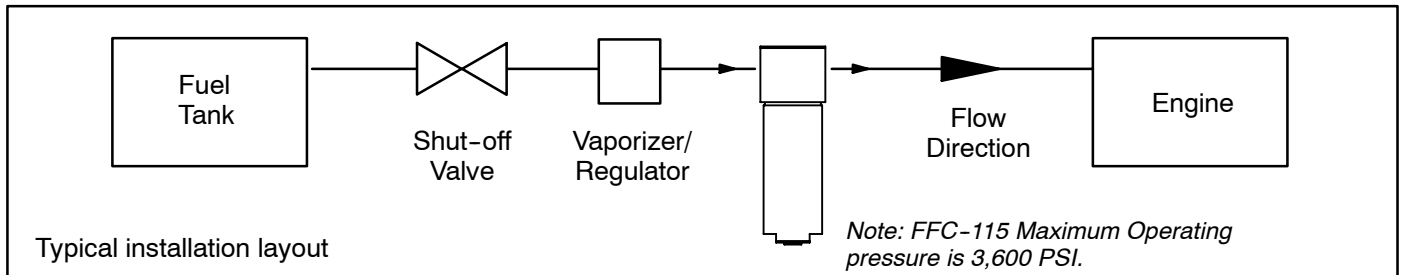


FFC-115

Replacement Service Element

CLS113-6 Grade 6, coalescing service element

Installation Diagram / Dimensional Layout



Head is 3.13" (80 mm) diameter. Inlet and outlet ports are: 1"-11 1/2 NPTF (SAEJ476)

3/8"-16 SAE (2)

1.38" (35 mm)

2.67" (68 mm)

.95" (24 mm)

7.48" (190 mm)

Drain

Installation Note
The unit should be located in an accessible and protected location for easy servicing. Use connectors approved by the American Gas Association and the Department of Transportation. Test the installation for leaks using an approved leak detection fluid.

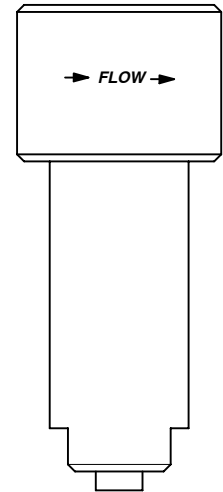
Service Note Caution:
The unit must not be under pressure during servicing. Injury to personnel may result. Close the shut-off valve shown in the illustration above and slowly relieve line pressure before attempting service.

Replacing the Element
Change the element at the same time as engine oil filter changes or at least every 6,000 miles.

Draining the Housing
Drain the housing every 2,000 miles or as necessary. With line pressure relieved, open valve and drain until liquid is removed, then close the valve.

SPECIFICATIONS are found on Alternative Fuel Filtration introduction page.

FFC-116	FEATURES
<p><u>Basic Model</u> 8.4 SCFM/5,000 PSI Coalescer. 316 stainless steel construction with standard 1/4" NPTF ports and Grade 10 element.</p>	<ul style="list-style-type: none"> - For use with low flow CNG systems. - Durable construction and simple servicing. - Small size allows for installation versatility. - Patented filter removes over 95% of all aerosols in the 0.3 to 0.6 micron range. - Sump capacity up to .25 oz. (7.4 cc) of fluid contaminants.

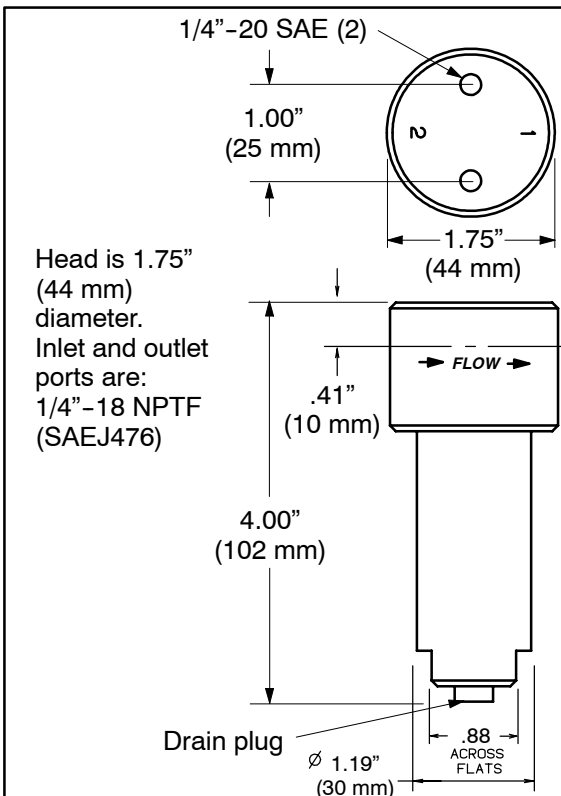
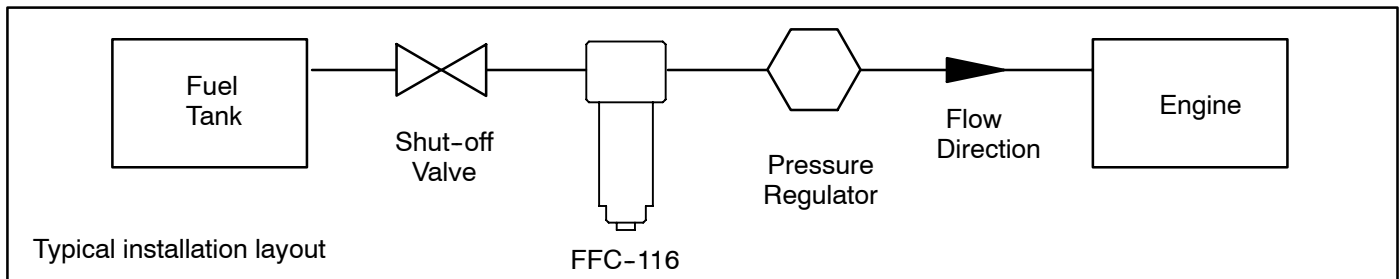


FFC-116

Replacement Service Element

CLS116-10	Grade 10, coalescing service element
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Installation Diagram / Dimensional Layout



Installation Note

The unit should be located in an accessible and protected location for easy servicing. Use connectors approved by the American Gas Association and the Department of Transportation. Test the installation for leaks using an approved leak detection fluid.

Service Note Caution:

The unit must not be under pressure during servicing. Injury to personnel may result. Close the shut-off valve shown in the illustration above and slowly relieve line pressure before attempting service.

Replacing the Element

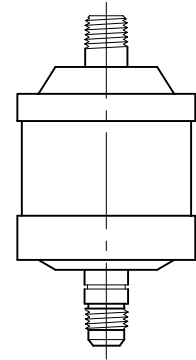
Change the element at the same time as engine oil filter changes or at least every 3,000 miles.

Draining the Housing

Drain the housing every 1,500 miles or as necessary. With line pressure relieved, remove the drain plug using a 1/4" Allen wrench, then replace the plug.

SPECIFICATIONS are found on Alternative Fuel Filtration introduction page.

FFC-119	FEATURES
<p><u>Basic Model</u> 500 PSI Prefilter/Strainer. Painted steel construction.</p>	<ul style="list-style-type: none"> - For use with LPG systems. - Durable construction. - Small size allows for installation versatility. - Assembly is painted for long term corrosion resistance.

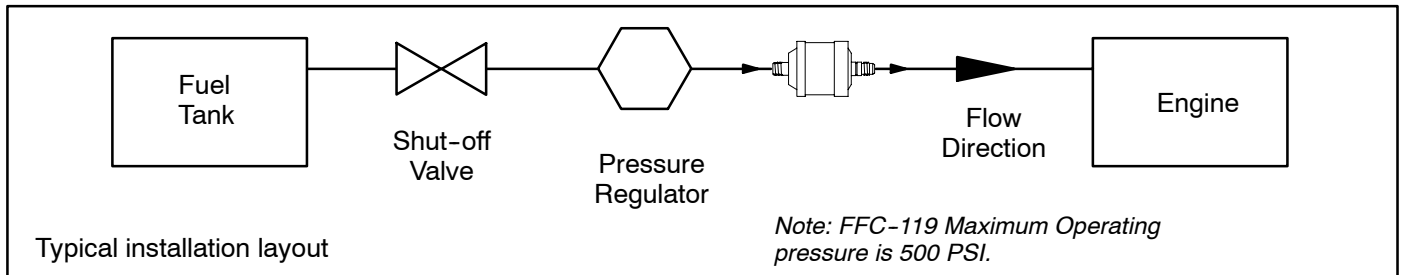


FFC-119

Replacement Service Element

No Service Element Available

Installation Diagram / Dimensional Layout



Body is 2.63" (67 mm) diameter.
Inlet port is 1/4"-18 NPTF male (SAEJ476).

4.87"
(124 mm)

Outlet port is 5/8"-18 UNF-2A SAE 45° Flare (SAEJ512).

Installation Note

The unit should be located in an accessible and protected location for easy servicing. Use connectors approved by the American Gas Association and the Department of Transportation. Test the installation for leaks using an approved leak detection fluid.

Service Note Caution:

The unit must not be under pressure during servicing. Injury to personnel may result. Close the shut-off valve shown in the illustration above and slowly relieve line pressure before attempting service.

Replacing the Element

Change the element at the same time as engine oil filter changes or at least every 3,000 miles.