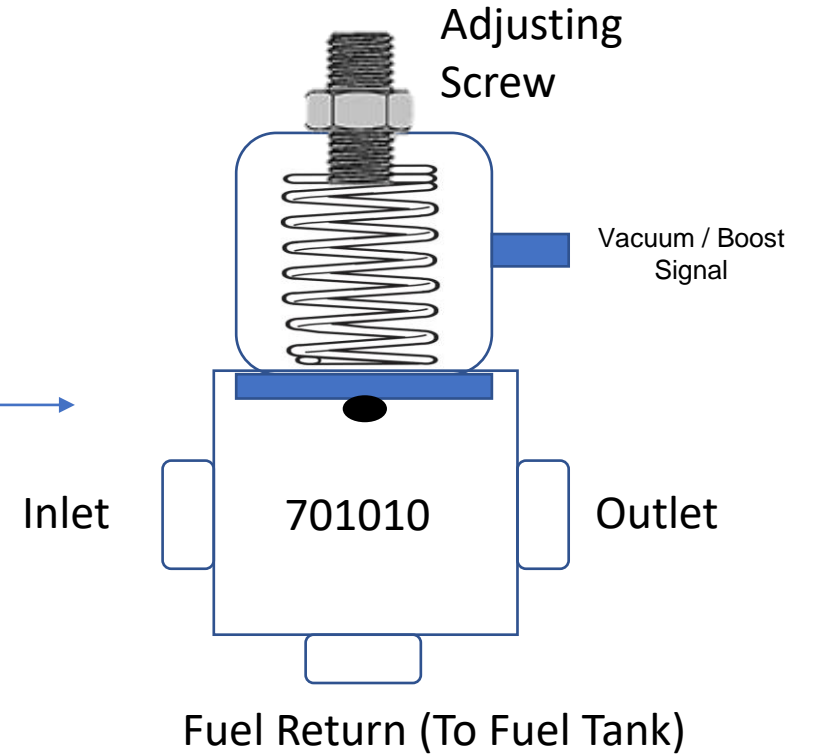


***NOTE:** Thread adjusting screw down (clockwise) to increase fuel pressure; thread adjusting screw up (counter-clockwise) to decrease fuel pressure.



Swivel Hose End Fitting

180500-08



180500-08

Swivel Hose End Fitting

- 1XX Color of the Hose end
- 5XX Type fitting
- 0x Degrees
- 0X AN FEMALE SIZE

POWER BOX

56286-01

Power box

- 5X Stage
- X Type of Hose
- XX Feed and return
- 0X Flow

AN Flare to ORB Black Straight Cut

6070-0406

AN Flare to ORB Black Straight Cut

- 6 X AN Male 37
- 7X AN Male ORB
- 0x AN 37 SIZE
- 0X ORB SIZE

6070-0406

PRO-B FUEL LINE

1000-0420

Braided Hose

- Type of hose
- AN SIZE
- Length (in feet)

1000-04-20



AN4 AN6



What is a return style fuel pressure regulator?

How does it work?

Fuel from the pump enters the inlet. It flows past the “bypass valve,” which is held closed by a spring. Fuel exits the outlet port. Finally, it flows to the fuel bowls or fuel rails.

As pressure increases, it pushes against the spring through a diaphragm. When the pressure gets high enough, the bypass valve starts to open. This redirects some fuel back to the tank. This reduces the pressure in the system.

As the pressure drops, the spring closes the valve. This allows the pressure to rise. The bypass valve continues to open and close to maintain the set fuel pressure. Pressure can be adjusted with the nut/bolt on top of the regulator.

Most regulators also have a vacuum/boost reference port. Connect it to the carburetor or intake (check your instructions). This allows manifold pressure to affect the regulator diaphragm. By doing so, the regulator will adjust fuel pressure based on boost pressure. This helps to ensure proper fuel delivery.

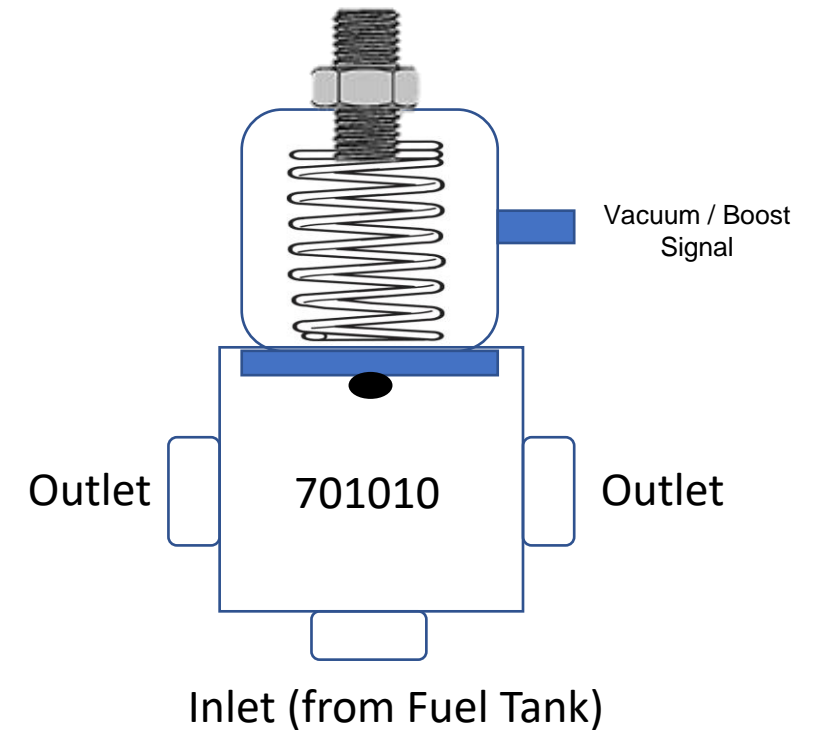
How does it affect performance?

A return-style regulator offers a few benefits over Blocking Regulators:

- The regulator reacts faster to changes in engine load.
 - It supplies more consistent and accurate fuel pressure.
 - This reduces Lean Condition spikes.
- The regulator is easier on electric fuel pumps.
 - By bleeding off the excess pressure, the pump only maintains the set pressure.
 - This results in less heat, less noise, and longer pump life.
- The regulator keeps the entire system cooler. It constantly circulates fuel.
 - This reduces the risk of Vapor Lock and can make more power.

However, there are also a few drawbacks:

- The system requires extra plumbing.
 - A Return Line means additional hoses and fittings.
- Return style regulators can't be used in some fuel systems.
 - For example, a nitrous system with a single pump and multiple regulators set at different pressures.
 - The entire system will be limited by the regulator with the lowest setting.



What is a non-return style fuel pressure regulator?

Definition & Description

Non-Return Style Regulators are common on older vehicles. They are usually used with a carburetor. They are also called “blocking” or “deadhead” regulators.

How does it work?

Fuel from the pump enters the inlet. It flows through the “fuel control valve,” which is held open by a spring. Fuel exits the outlet port. (In this example, the image shows a regulator with 2 outlets. In a normal installation, one of the outlets would be plugged.) Finally, it flows to the fuel bowls or fuel rails.

As pressure increases, it pushes against the spring through a diaphragm. When the pressure gets high enough, the control valve starts to close. This reduces fuel flow and pressure after the regulator.

As the pressure drops, the spring opens the valve. This allows fuel to flow and the pressure to rise. The control valve continues to open and close to maintain the set fuel pressure. Pressure can be adjusted with the nut/bolt on top of the regulator.

Most regulators also have a vacuum/boost reference port. Connect it to the carburetor or intake (check your instructions). This allows manifold pressure to affect the regulator diaphragm. By doing so, the regulator will adjust fuel pressure based on boost pressure. This helps to ensure proper fuel delivery.

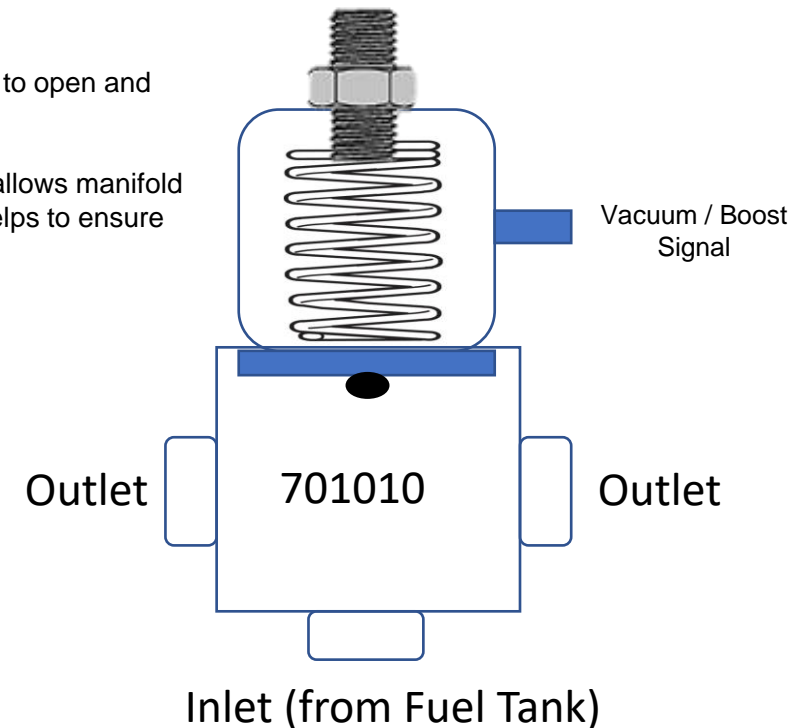
How does it affect performance?

A non-return style regulator offers a few benefits over Bypass Regulators:

- Plumbing does not require a return line.
 - Less weight, complexity, and cost.
- Can be used in single pump systems with multiple regulators.
 - For example, a nitrous system with a single pump and multiple regulators set at different pressures.

However, there are also a several drawbacks:

- Requires extra fuel pressure to fully close the control valve.
 - This results in a spike in output pressure.
 - This can over-pressurize or overfill the fuel bowls.
- Subject to “pressure creep.”
 - High pressure can leak past the closed control valve.
 - This causes output pressure to continue to rise.
- Can be harder on electric fuel pumps.
 - Back pressure is created because the regulator blocks fuel flow.
 - This stresses the pump and can cause more noise, more heat, and shorter life.



What size fuel pump do I need?

Fuel Pump Specs Defined ,Fuel Pumps are sized by flow rate. Flow rate is the amount of fuel a pump can supply over time. It is usually measured in gallons per hour (gph) or liters per hour (lph).

How do I know what flow rate I need?

- Minimum flow rate needs can be calculated by multiplying peak horsepower by BSFC. This will give you fuel usage in lbs./hr. For example:

A naturally aspirated 500 horsepower engine has a BSFC of about 0.5. It would use 250 lbs. of fuel per hr. $500 \times 0.5 = 250 \text{ lbs./hr.}$

A gallon of fuel weighs 6 lbs. To get gph divide lbs./hr. by 6. $250 \text{ lbs./hr.} \div 6 = 41.67 \text{ gph}$

A liter of fuel weighs about 1.6 lbs. To get lph divide lbs./hr. by 1.6 $250 \text{ lbs./hr.} \div 1.6 = 156.25 \text{ lph}$

You need the minimum flow rate at your fuel system's operating pressure. For Carburetors, this is between 4-7.5 psi. Fuel Injection will usually be between 35-65 psi.

Flow Rate vs. Pressure

Fuel pumps are usually advertised by their free flow rate. This is the flow rate with no pressure. As pressure goes up, flow rate goes down. The best way to find the flow rate at a given pressure is to check a fuel pump's curve chart.

In the following example of a curve chart, flow is shown by the green and blue lines. This pump has a free flow rate of 78 gph. At 60 psi. flow rate drops to 62 gph.

Making the Choice

A fuel system with a Return Style Regulator Page 2 or a Non-Return Style Regulator Page 3 can use a bigger fuel pump than you need with no problem. The following chart has some general guidelines for selecting a fuel pump for a gasoline engine:

Fuel Pump Free Flow	Carbureted Engine	Carbureted w/ Power Adder	Fuel Injected Engine	Fuel Injected w/ Power Adder
30 gph/114 lph	350 hp	300 hp	300 hp	250 hp
40 gph/155 lph	450 hp	400 hp	400 hp	300 hp
50 gph/190 lph	600 hp	500 hp	500 hp	400 hp
67 gph/255 lph	750 hp	650 hp	650 hp	500 hp
90 gph/340 lph	1000 hp	850 hp	850 hp	600 hp
125 gph/470 lph	1300 hp	1000 hp	1000 hp	800 hp

What size fuel line do I need?

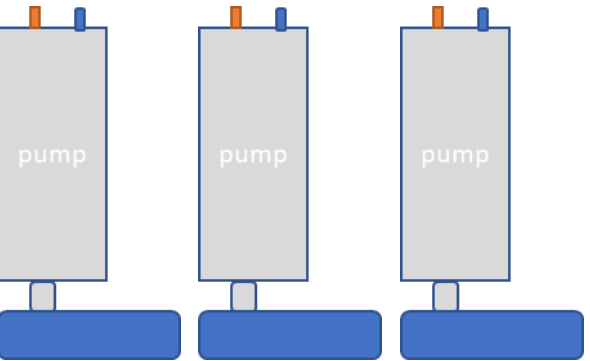
Recommended Size, Based on Horsepower

Fuel pumps are sized to feed your system with enough fuel to optimize engine performance. However, when using an Inline Fuel Pump, you can starve it for fuel if the line is too small. A lot of aftermarket pumps will list the required line sizes. If your pump does not list line sizes, use the table below as a basic guideline.

Recommended Fuel Line Size		
Engine Output	Size (inches)	Size (AN)
350 hp or less	5/16 in.	-5
350-450 hp	3/8 in.	-6
450-650 hp	1/2 in.	-8
650-1,000 hp	5/8 in.	-10

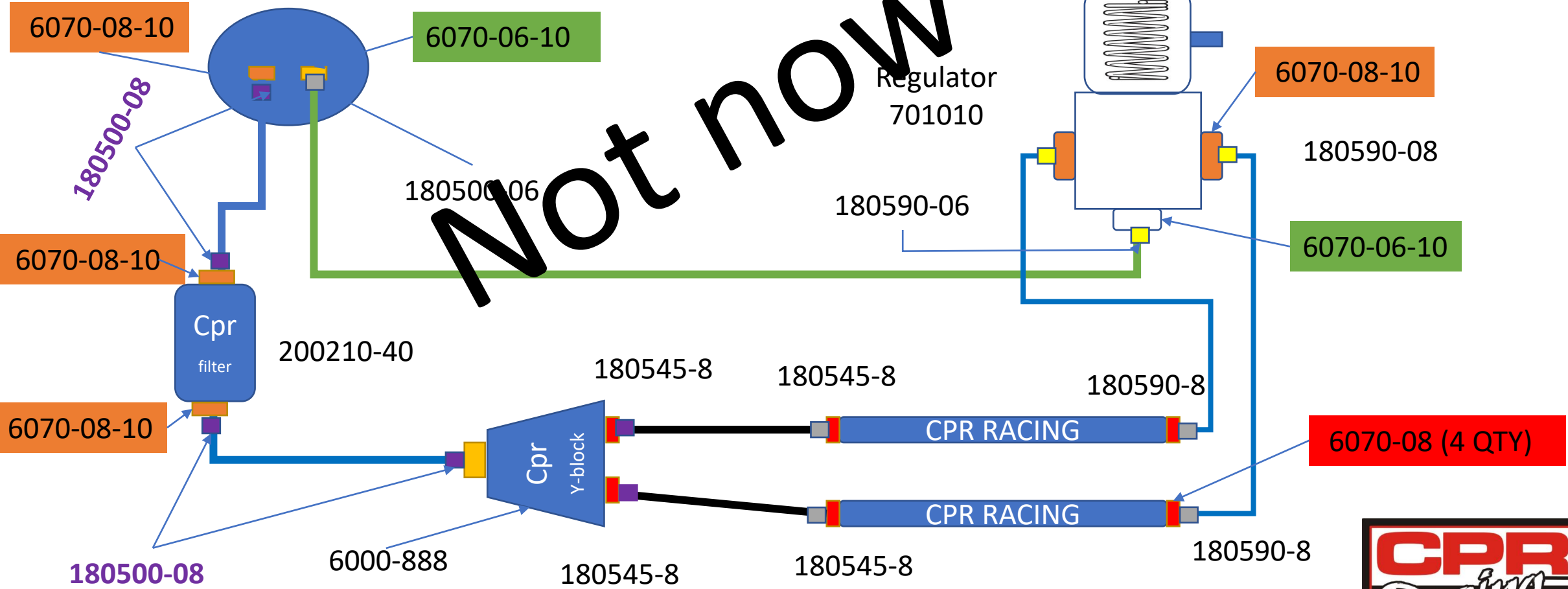
SATGE 1
56286-01 AND 56486-01

In-tank Fuel Pump 1,2 or 3 pumps
Universal fuel system Stage 1 -8



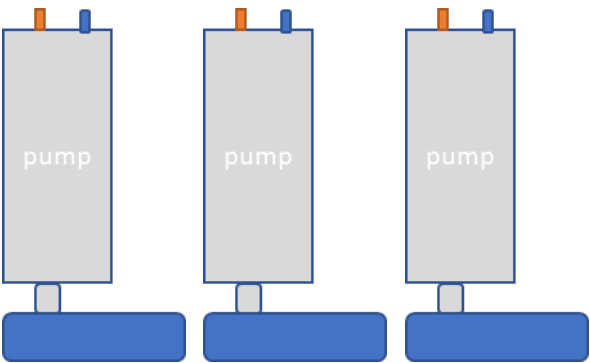
Relay for fuel pump
1, 2 or 3

Not now



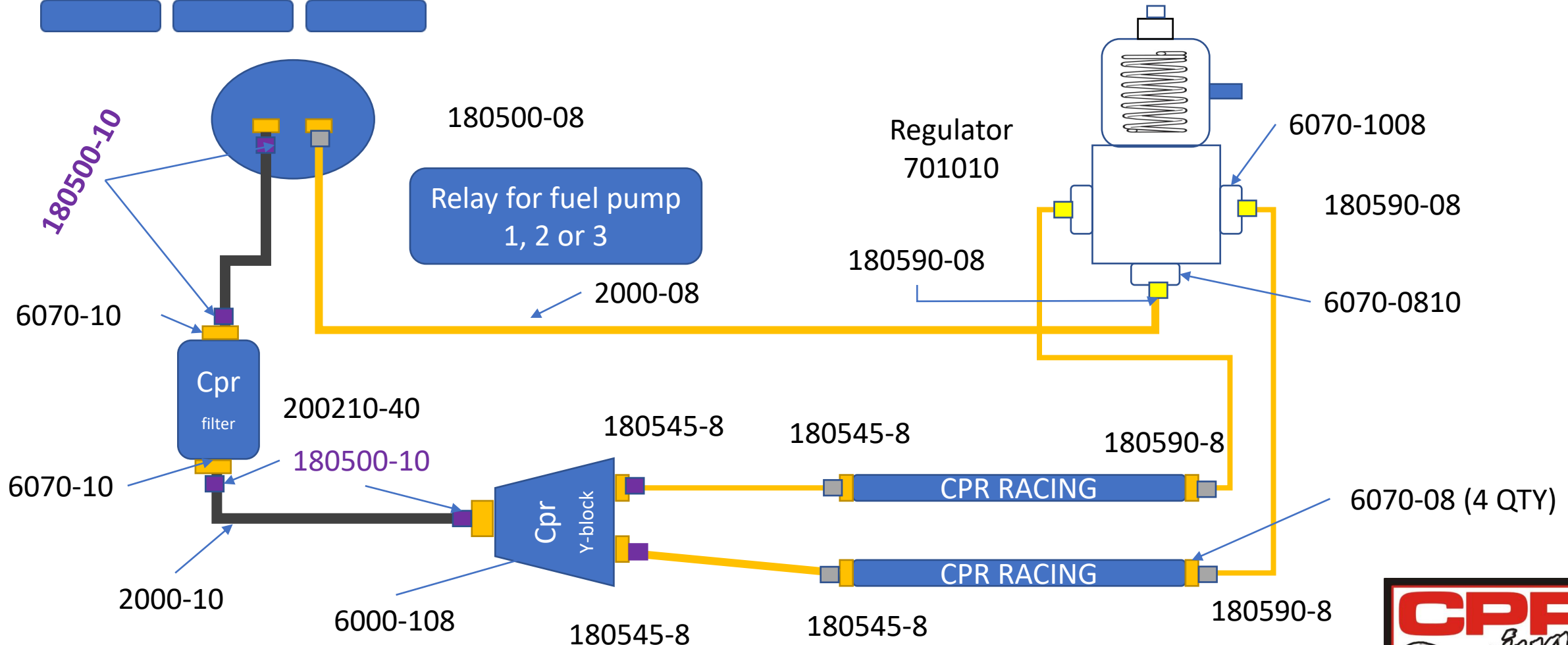
EMAIL sales@cpracing.com WEB PAGE CPRRACING.COM





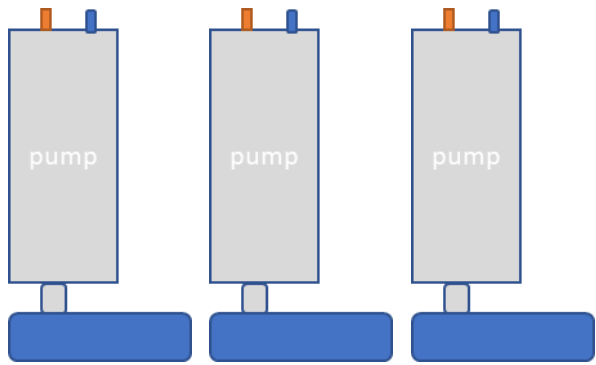
In-tank Fuel Pump 1,2 or 3 pumps
 Universal fuel system Stage 2 -10

PRO B 2000-10
 PRO B 2000-08



EMAIL sales@cpracing.com WEB PAGE CPRACING.COM

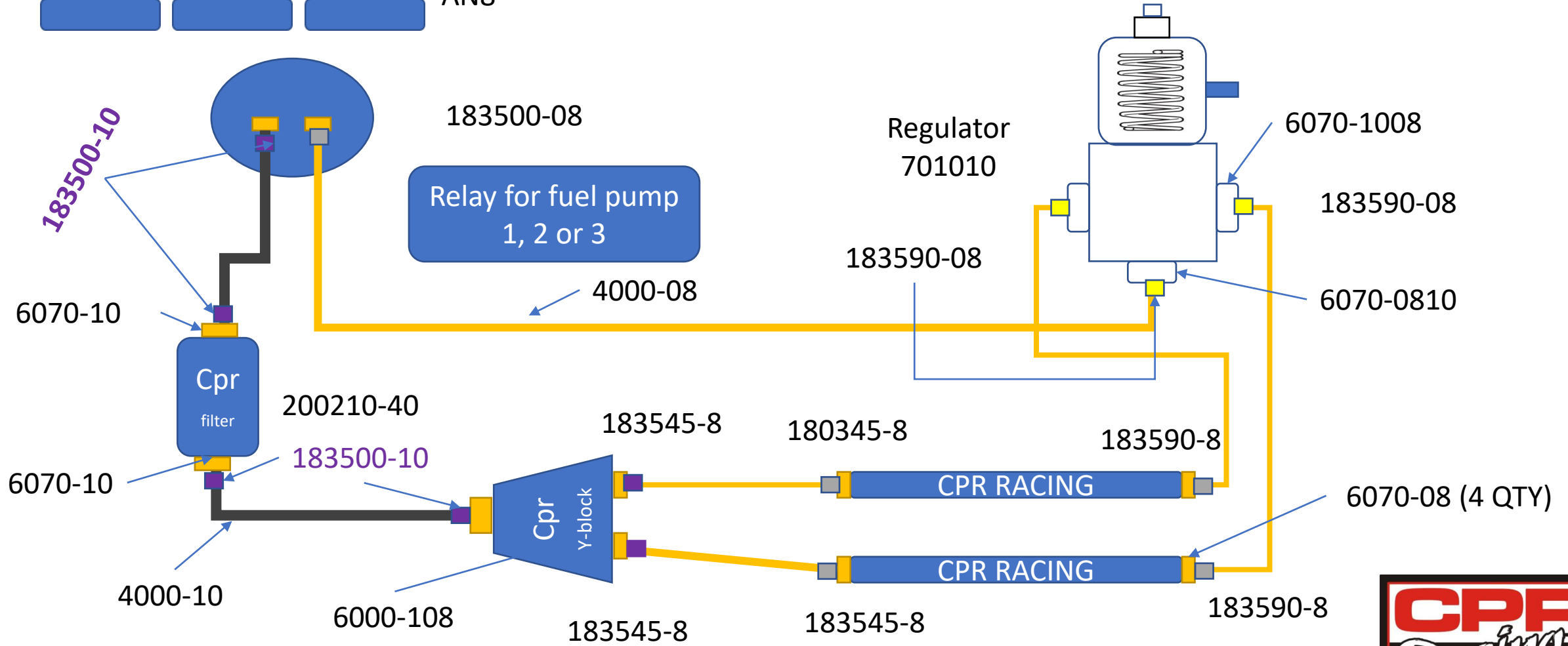




In-tank Fuel Pump 1,2 or 3 pumps
 Universal fuel system Stage 2 -10

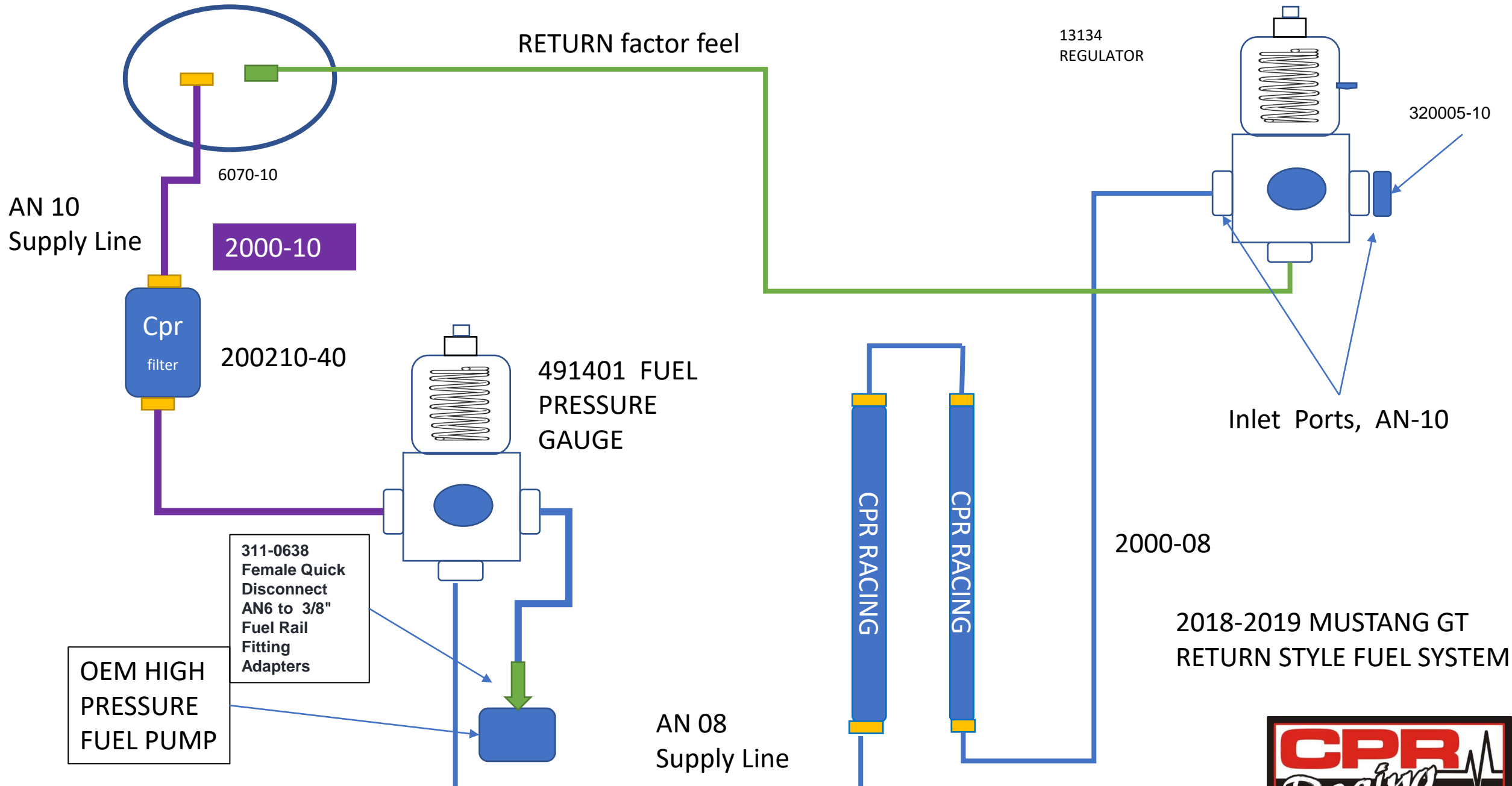
PRO B 4000-10
 PRO B 4000-08

574108-02 STAGE 2
 PRO-B4000 PTFE SS Black Braided Hose Per Foot AN10 AND
 AN8



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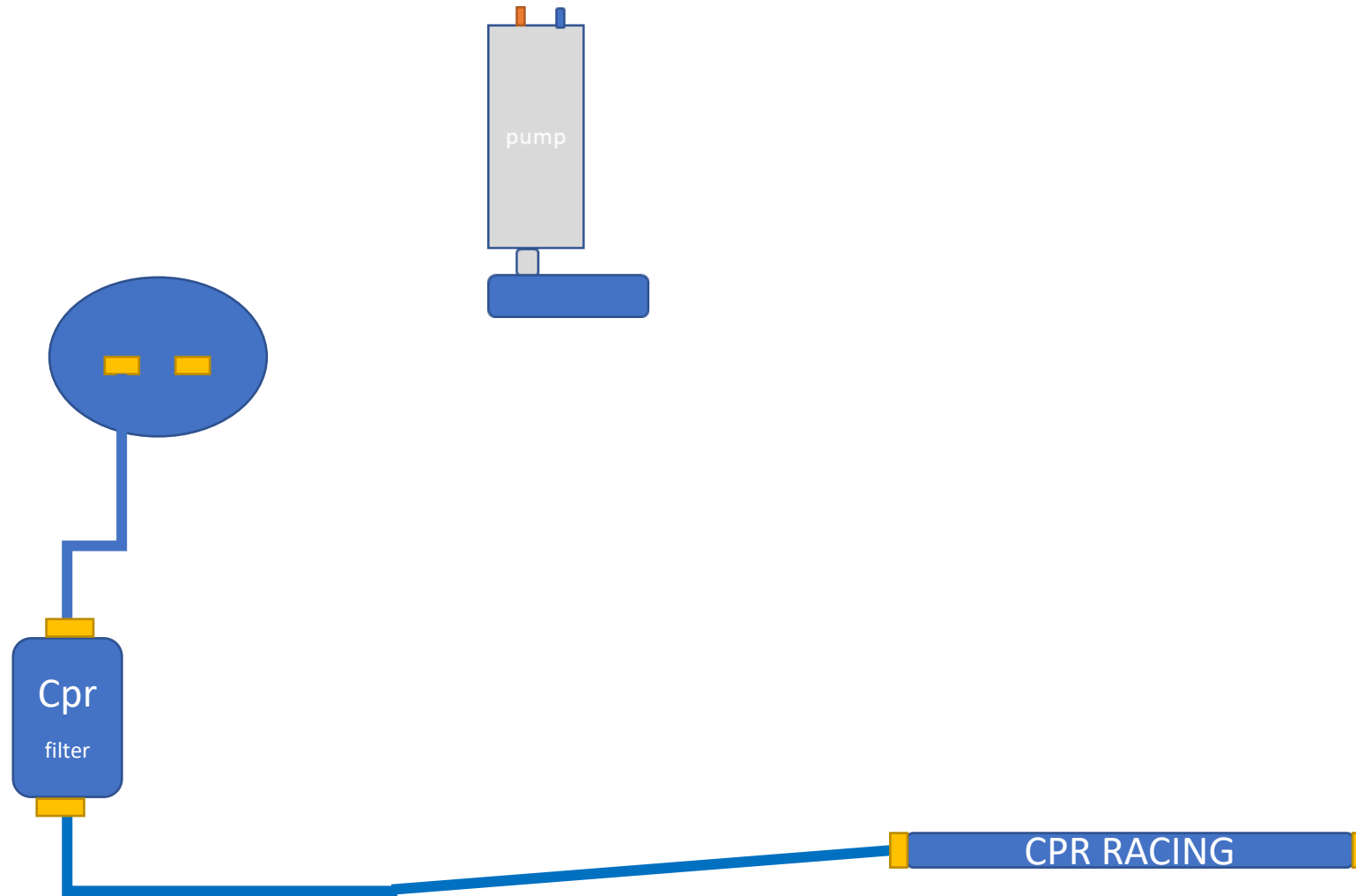




EMAIL sales@cpr racing.com WEB PAGE CPRRACING.COM

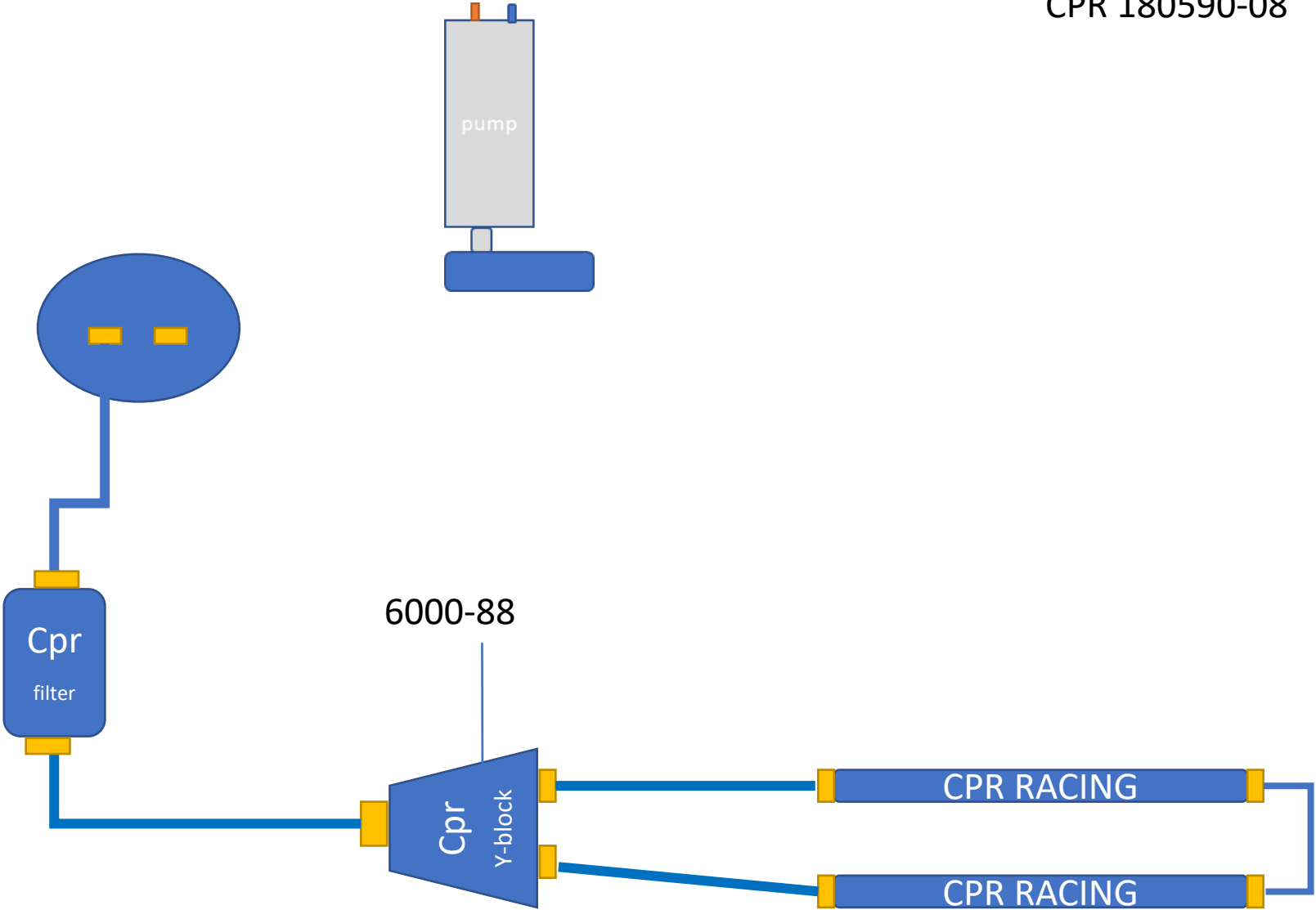


Return less system

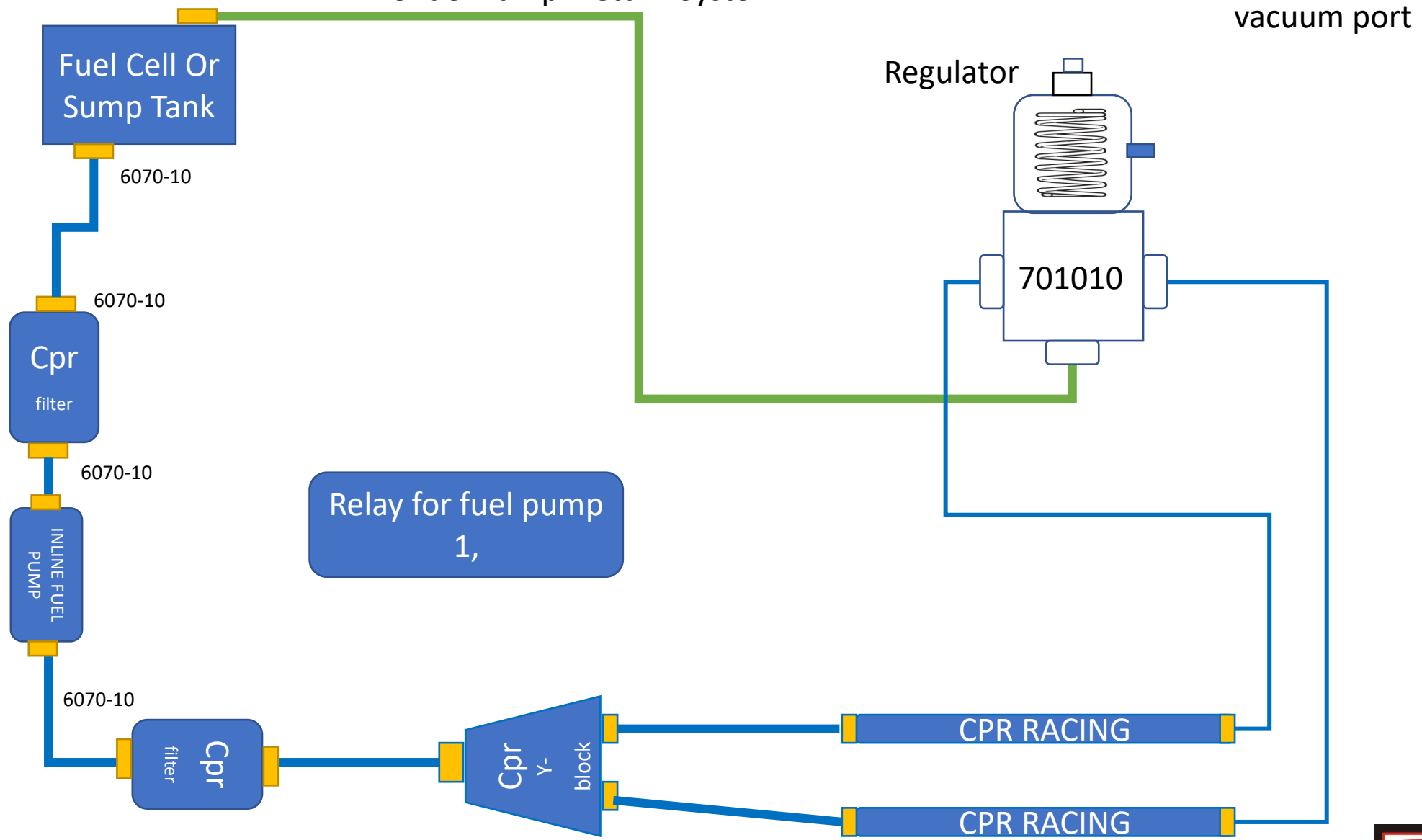


Return less system

CPR 180590-08

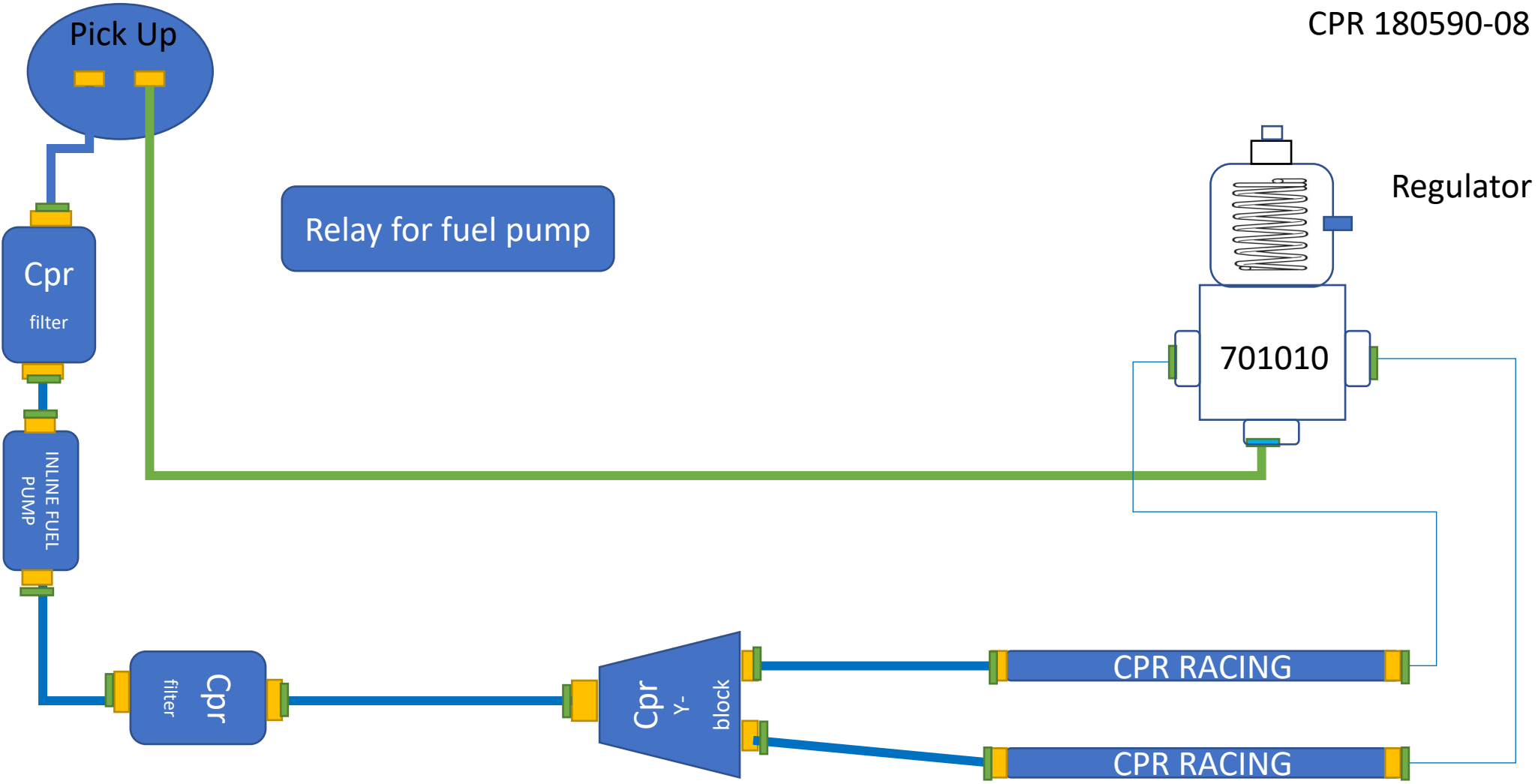


In-line fuel Pump Return System

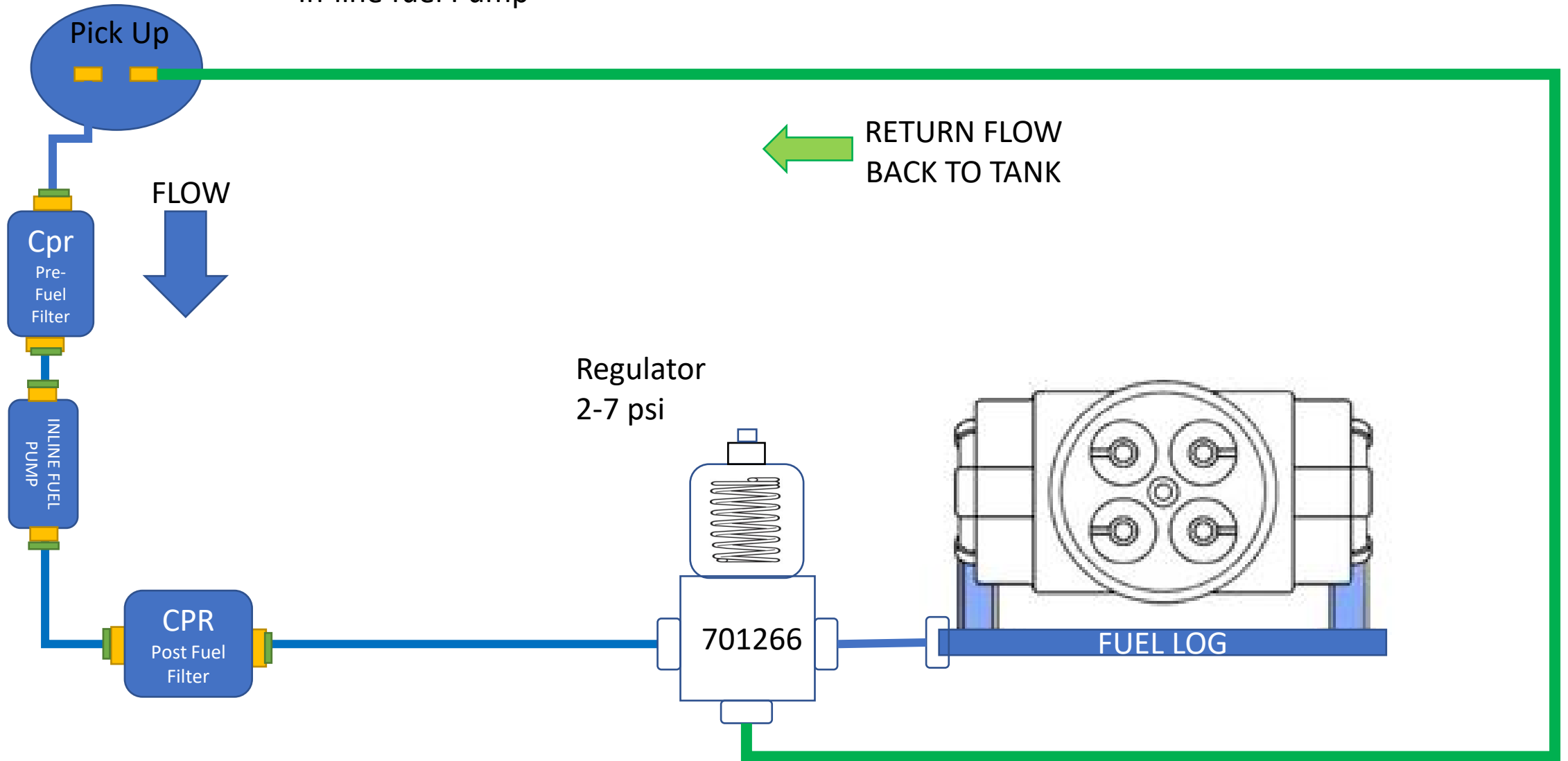


In-line fuel Pump Return System

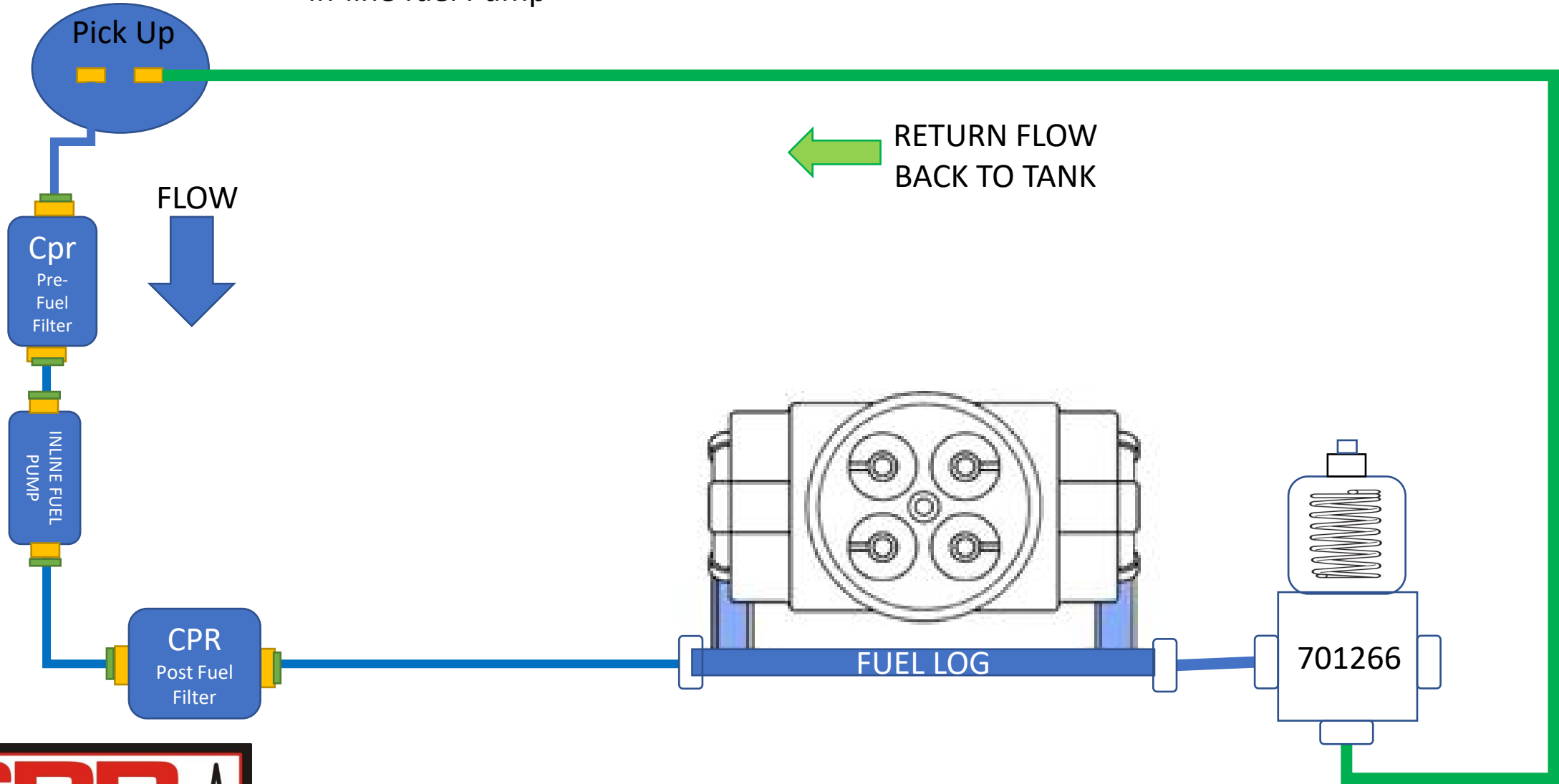
CPR 180590-08



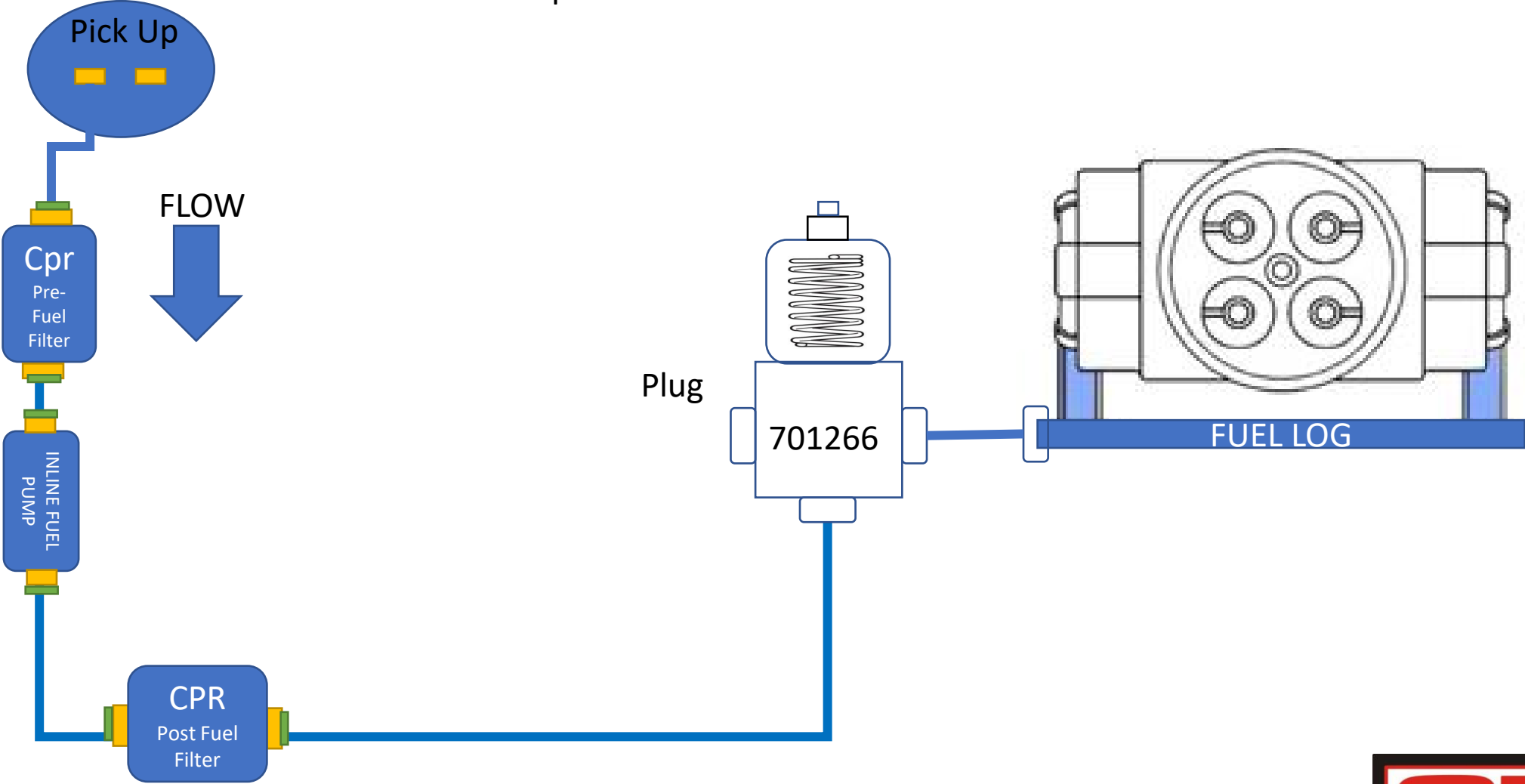
In-line fuel Pump



In-line fuel Pump



In-line fuel Pump

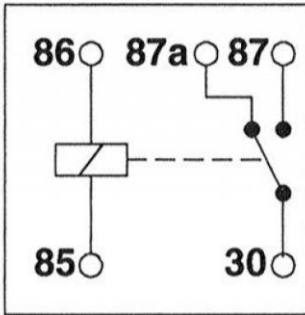
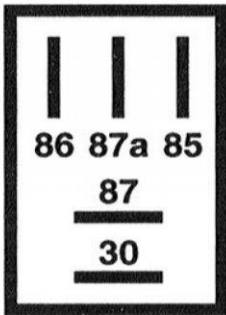


5 Pin Relay, Micro Blade, 30/20A AMP

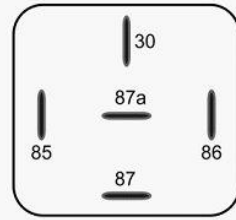


Pin Layout
DIN 72552

Circuit Diagram



Mini Automotive Relay

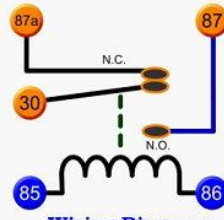


Bottom View

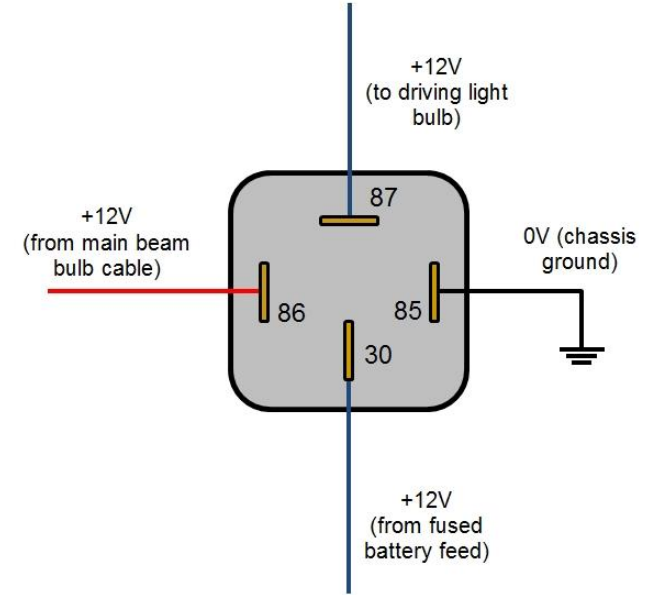
N.C. = Normally Closed
N.O. = Normally Open

30 - Common
87a - Normally Closed
87 - Normally Open

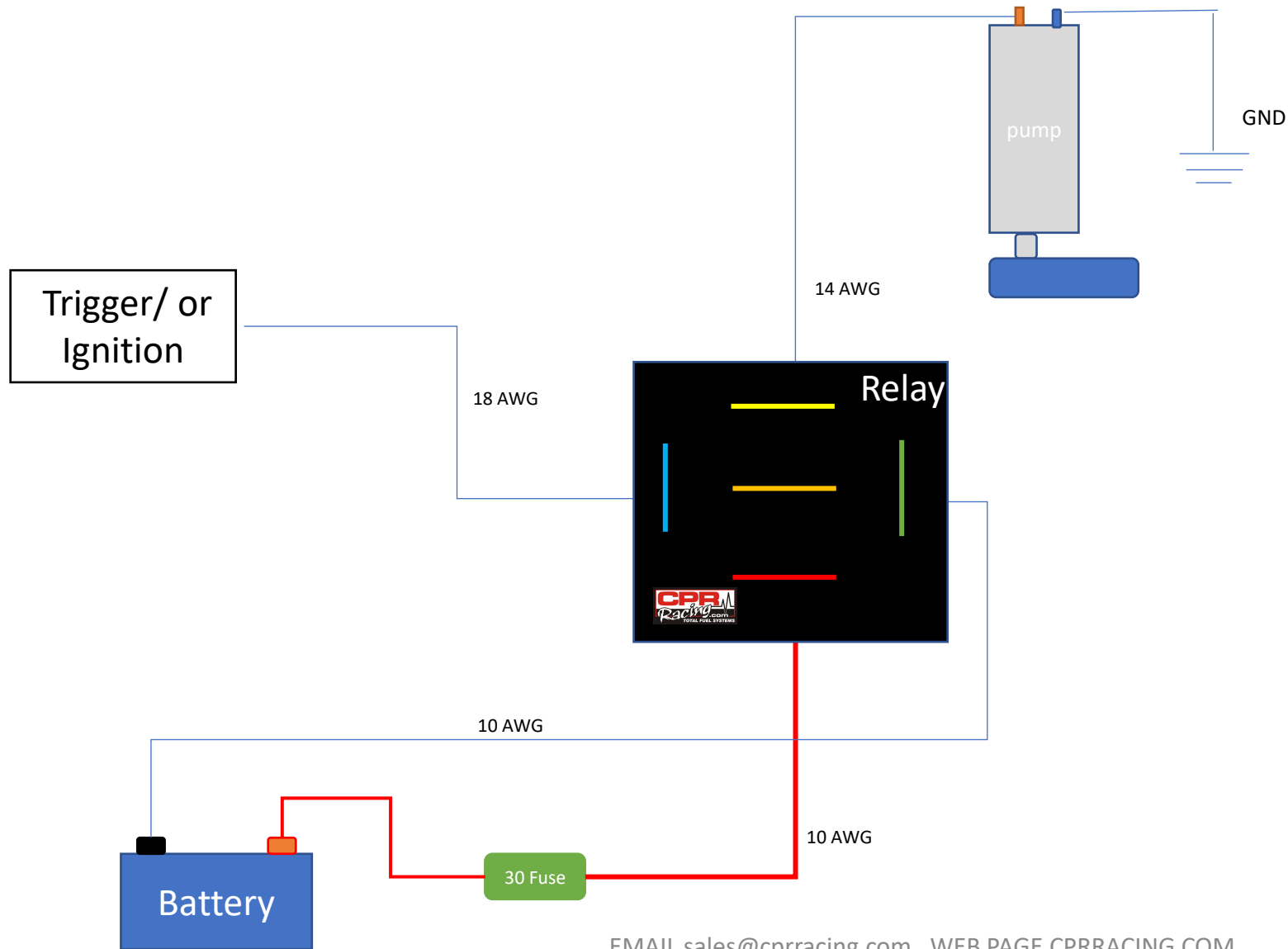
85 - Coil Ground
86 - Coil Control



Wiring Diagram



CPR	6012-753	CPR Universal Fuel Pump Relay Kit. 30 AMP with inline fuse (1)	30 AMP
CPR	6012-759	CPR Universal Fuel Pump Relay Kit. 30 AMP relay X 2 with inline fuse	2 (30 AMP) KIT
CPR	6012-760	CPR Universal Dual Fuel Pump Relay Kit. With Kill switch and inline fuses (2)	2 x (30 AMP) KIT KS



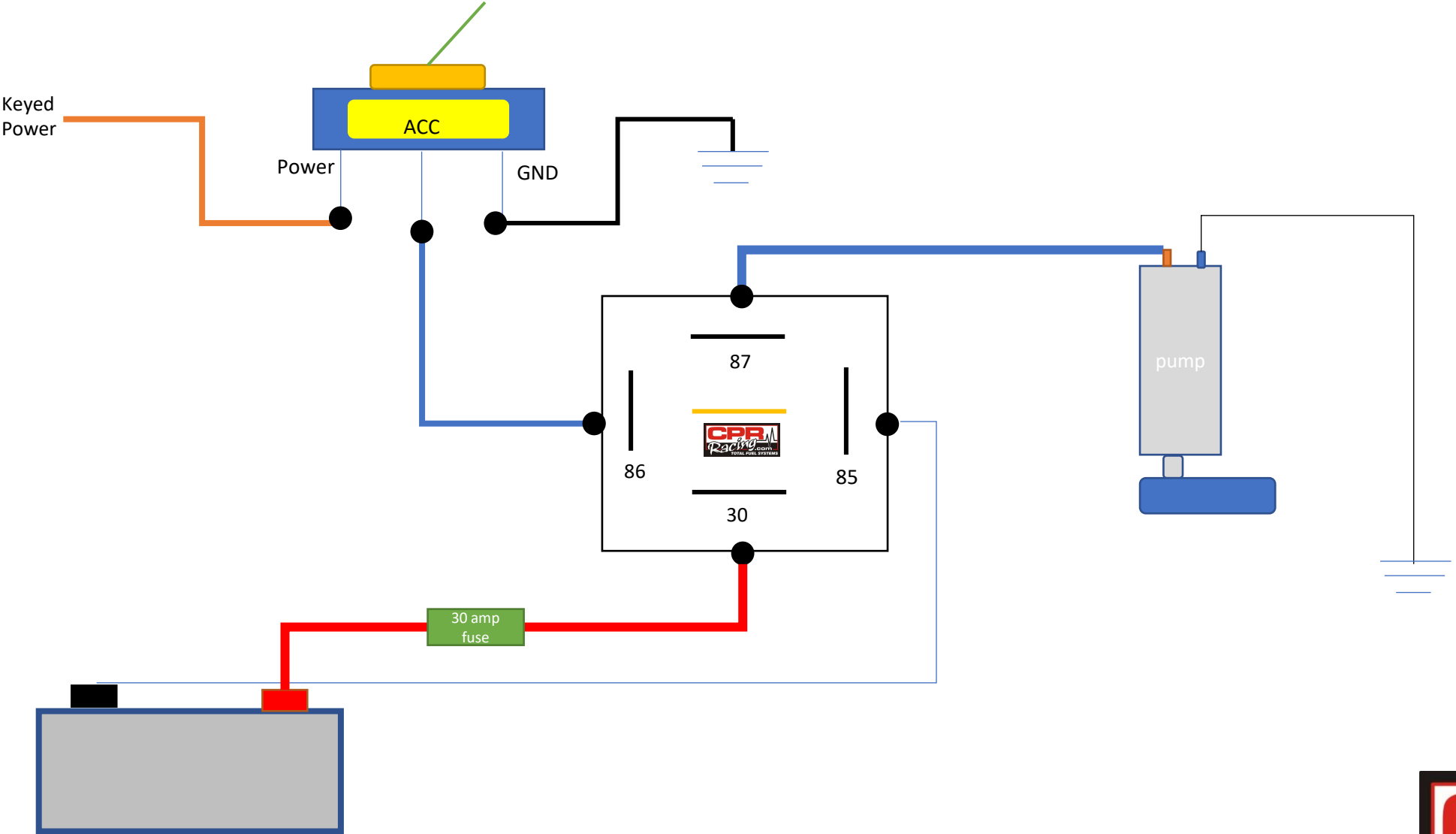
CPR Racing
TOTAL FUEL SYSTEMS

- 86 Trigger
- 87 Pump
- 85 ground
- 30 power

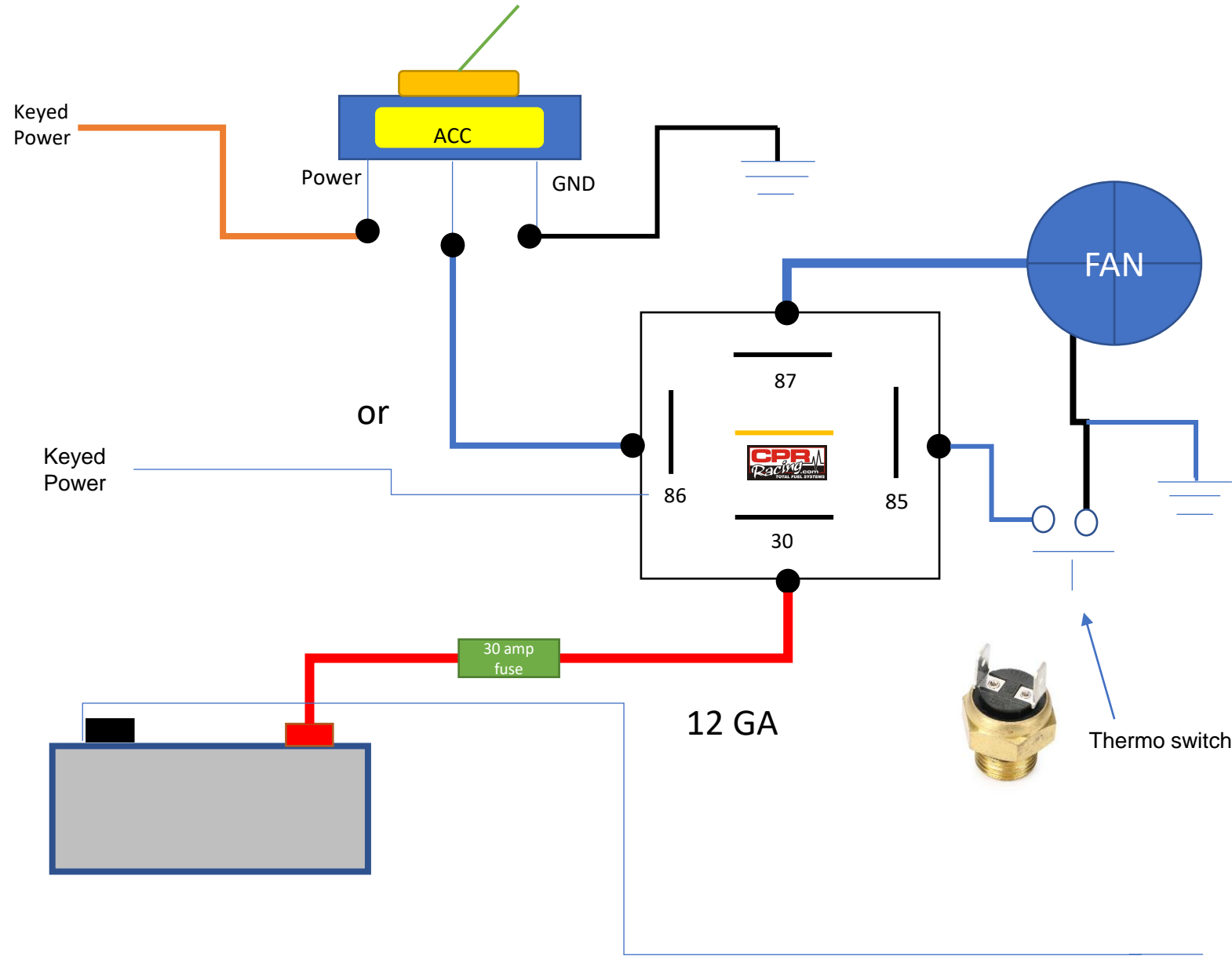
- 86 Trigger ON /OFF
- 87 Out put TURN ON
- 85 ground GND
- 30 power 12 V



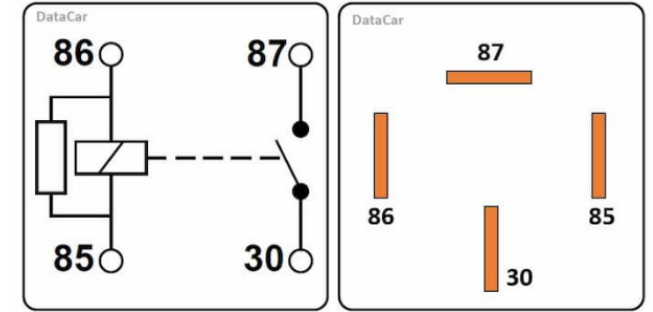
Toggle Switch

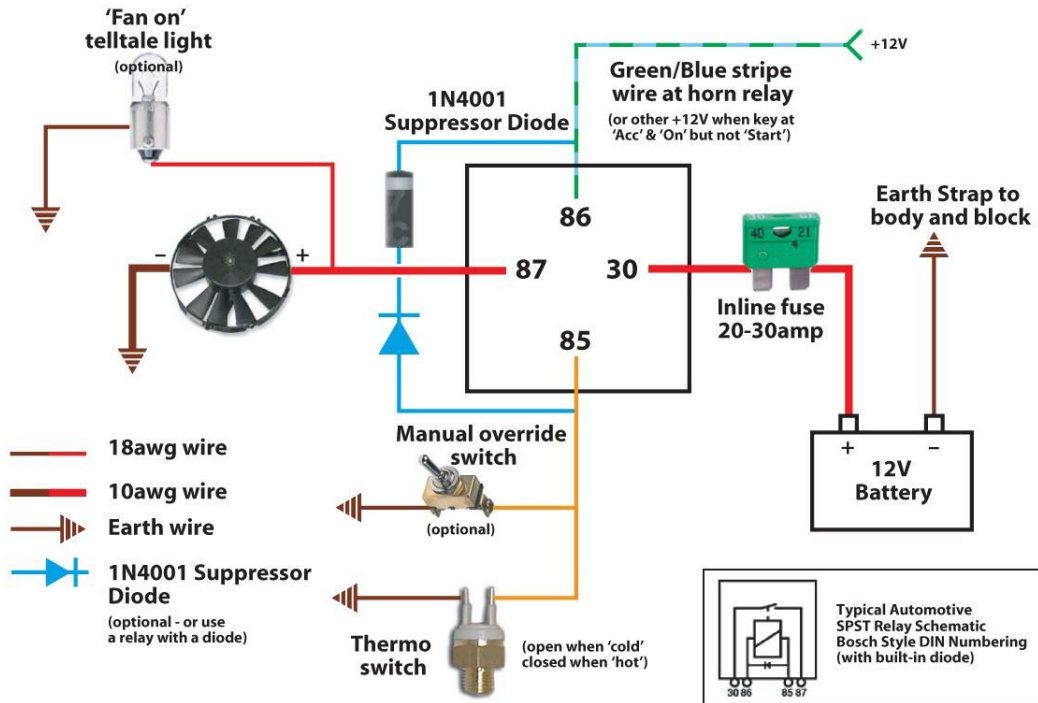


Electric Cooling Fan Wiring Diagram

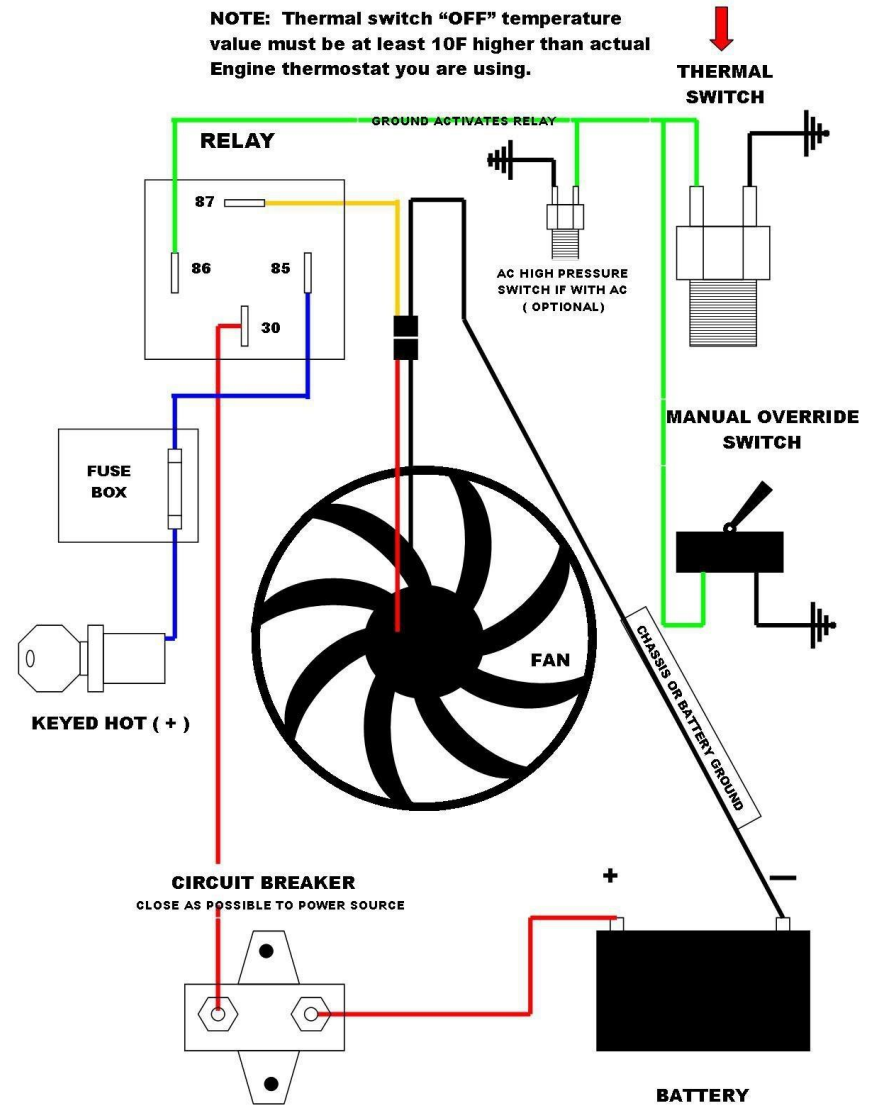


Toggle Switch with Thermo switch electric fan





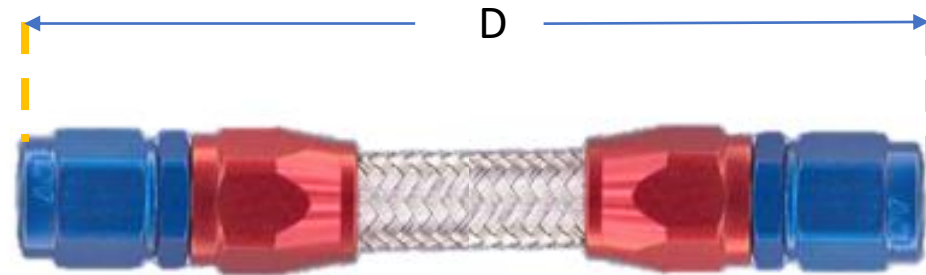
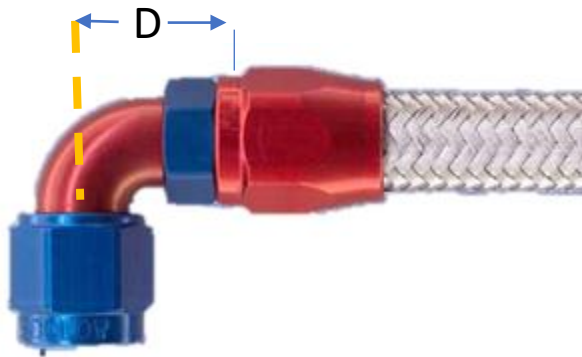
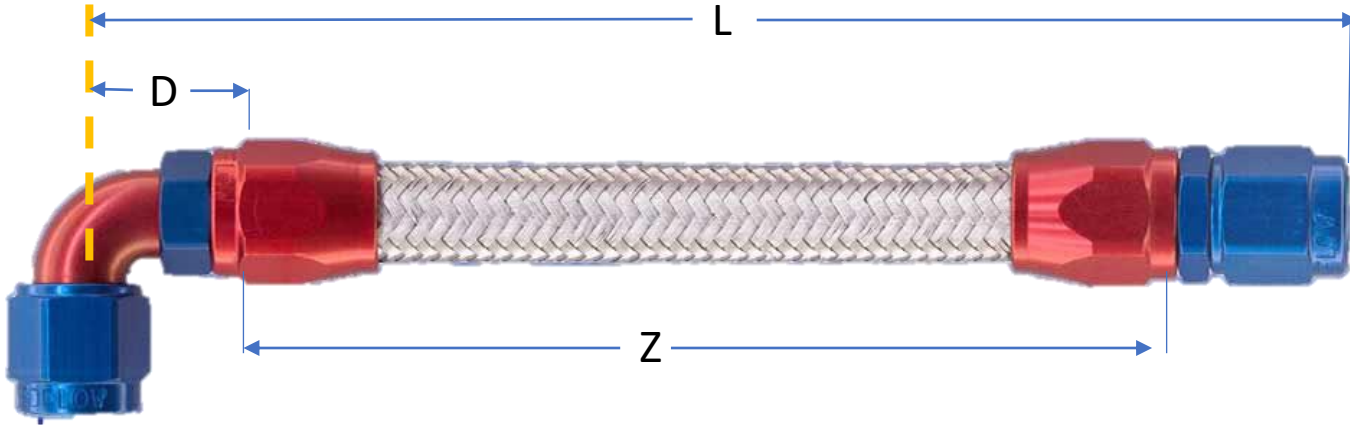
Design by Zenon Holtz. Drawn by Shaun Feruglio.



How To Determine Hose Assembly Lengths:

To determine the “Z” length (cut length of hose) from “L” length (overall length), deduct “D” dimensions of both end fittings. Consult fitting information tables for “D” dimensions.

L = Overall Length
Z = Cut Length of Hose
D = Fitting Length



MUSTANG STOCK FUEL INJECTOR SIZES

Model	EV1	EV6	EV14
1984-85' SVO	30lb/hr.		
1985.5-86' SVO	35lb/hr.		
1987-02' LX, 5.0L, GT, Bullitt	19lb/hr.		
2003-04' GT	21lb/hr.		
1993 Cobra	24lb/hr.		
1996-98' Cobra	24lb/hr.		
1994-98' V6	14lb/hr.		
1999-04' V6		22lb/hr.	
2005-10' GT		24lb/hr.	
1996-01' Cobra		24lb/hr.	
2003-04' Cobra		39lb/hr.	
2003-04' Mach 1		24lb/hr.	
2005-10' V6			19lb/hr.
2011-17' GT			34lb/hr.
2007-12' GT500			47lb/hr.
2013-14' GT500			52lb/hr.
2015-17' V6			29lb/hr.
2015-21' EcoBoost			24lb/hr. *Excludes HPP EcoBoost
2016-21' GT350			34lb/hr. *Includes GT350R

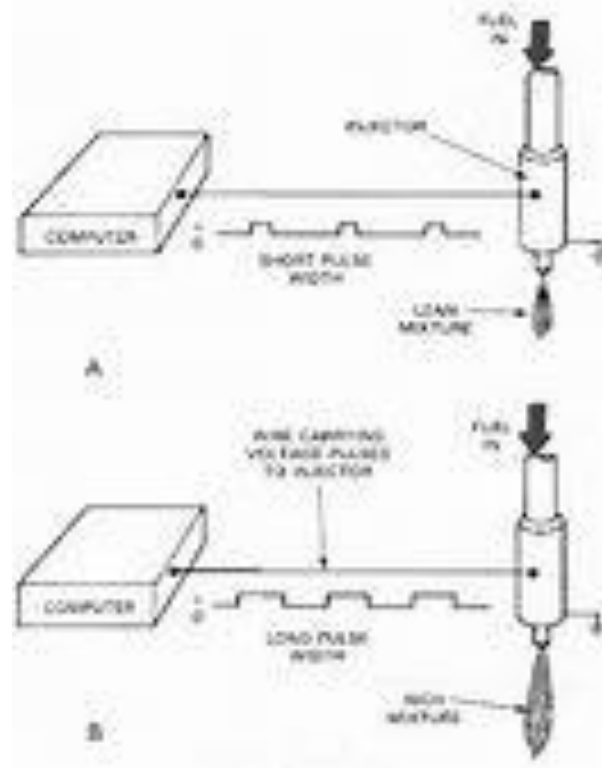
Inj Flow Rate (@ 43 psid) lb./hr.	Inj Flow Rate (@ 43 psid) CC	Naturally Aspirated hp (@ 0.50)	Forced-Induction hp (@ 0.65)
19	200	258 hp @ 85% Duty Cycle	199 hp @ 85% Duty Cycle
24	252	326 hp @ 85% Duty Cycle	251 hp @ 85% Duty Cycle
30	315	408 hp @ 85% Duty Cycle	314 hp @ 85% Duty Cycle
32	336	435 hp @ 85% Duty Cycle	335 hp @ 85% Duty Cycle
34	357	462 hp @ 85% Duty Cycle	356 hp @ 85% Duty Cycle
36	378	490 hp @ 85% Duty Cycle	377 hp @ 85% Duty Cycle
38	399	516 hp @ 85% Duty Cycle	398 hp @ 85% Duty Cycle
39	410	530 hp @ 85% Duty Cycle	408 hp @ 85% Duty Cycle
42	441	571 hp @ 85% Duty Cycle	439 hp @ 85% Duty Cycle
44	462	598 hp @ 85% Duty Cycle	460 hp @ 85% Duty Cycle
47	494	639 hp @ 85% Duty Cycle	492 hp @ 85% Duty Cycle
60	630	816 hp @ 85% Duty Cycle	628 hp @ 85% Duty Cycle
72	756	979 hp @ 85% Duty Cycle	753 hp @ 85% Duty Cycle
80	840	1088 hp @ 85% Duty Cycle	837 hp @ 85% Duty Cycle
98	1029	1333 hp @ 85% Duty Cycle	1025 hp @ 85% Duty Cycle
120	1260	1333 hp @ 85% Duty Cycle	1025 hp @ 85% Duty Cycle

The formula for calculating the correct size fuel injector for your Mustang is calculated by:

$$\text{Injector Flow Rate (lb./hr.)} = (\text{Engine HP}) \times (\text{BSFC}) / (\text{Number of Injectors}) \times (\text{Injector Duty Cycle})$$

What is Injector pulse width

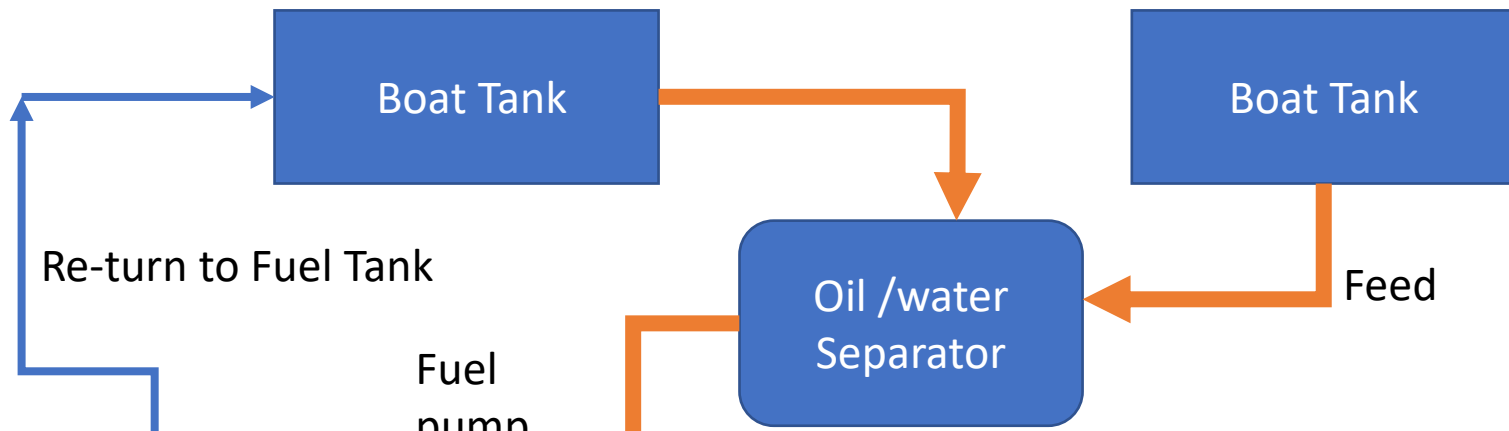
Injector pulse width is the amount of time, measured in milliseconds (ms), that a fuel injector stays open (delivers fuel) during a cylinder intake cycle. The typical injector pulse width for an idling engine at normal operating temperature is between 2.5 and 3.5 ms.



How to calculate a pulse width?

So to calculate the pulse width for a specified angle the following steps should be followed: Pulse range = maximum pulse width - minimum pulse width Pulse width per degree = pulse range / 181 For a specified angle, the pulse width = minimum pulse width + (angle * pulse width per degree)

Part number	QTY	Product Description	AN Size	Hose Size	MSRP
CPR 180500-08	5	Straight G180 Polish Black Swivel Hose End Fitting AN8	AN8	AN8	\$ 12.10
CPR 180590-08	4	90° G180 Polish Black Swivel Hose End Fitting AN8	AN8	AN8	\$ 31.40
CPR 180545-08	5	45° G180 Polish Black Swivel Hose End Fitting AN8	AN8	AN8	\$ 31.40
CPR 200210-40	1	2" OD 5.1" LTH Inline Billet fuel filters AN10 with 40 Micron	10 AN	40 Stainless Steel	\$ 139.04
CPR 28300-08	1	AN8 TEE - Female Swivel On Run	AN8	AN8	\$ 24.55
CPR 6070-06-10	1	AN6 Flare to -10 ORB Black Straight Cut	AN6	-10 ORB	\$ 6.05
CPR 6070-08	4	AN8 Flare to -8 ORB Black Straight Cut	AN8	-8 ORB	\$ 5.65
CPR 6070-08-10	4	AN8 Flare to -10 ORB Black Straight Cut	AN8	-10 ORB	\$ 6.05
CPR 2000-06	20	PRO-B2000 Black Braided Hose Per Foot AN6	AN6	9/16" 13.8mm	\$ 6.20
CPR 2000-08	20	PRO-B2000 Black Braided Hose Per Foot AN8	AN8	11/16" 17.1mm	\$ 7.34



740000-06	(ORB) AN AN6X3 (top 3 hole) ,AN8 x1 (bottom hole) 1.5L
740001-08	(ORB) AN AN8x4 (all 4 hole 8AN) 1.5 L

