



# Master Parts Catalog

*Excludes some Spectrum Series applications covered by  
manufacturer specific manuals and the line of automotive applications.*

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## Introduction

This IMPCO Master Catalog lists sellable parts for small engine, material handling, early automotive and large engine applications sold under brand names IMPCO, Beam Garretson and Algas with the following exceptions:

- Spectrum Series—these systems are covered in specific OEM Service and Parts Catalogs.
- Sequent System—these automotive systems will be covered in separate publications.

The catalog is broken into six major sections covering Carburetors/Mixers, Fuel Metering, Regulators, Shut-Off/Lockoff Valves, Adapters and Accessories. The brand of most components (IMPCO, Beam Garretson and Algas) is shown on the page headers. Items listed as “NSS” (Not Serviced Separately) are no longer available, not available separately, or are only available as part of an assembly or repair kit.

IMPCO Technologies reserves the right to add, delete, or modify parts or information without notice. Any component dimensions are for reference or installation purposes only. They are not to be used for quality, inspection, or testing purposes.

Every effort has been taken to ensure accuracy within this catalog. In the event of a discrepancy, please notify [sales@impcotechnologies.com](mailto:sales@impcotechnologies.com) or call (210) 495-9772.

## About IMPCO

In 1957, Herbert V. Hills and Richard Baverstock founded the Imperial Machine Products Company in a small Quonset hut in South Gate, California. The following year, their first product was released. Called the "IMPERIAL," the automotive carburetor is still sold today as the CA300A. The company entered the industrial market with the introduction of the CA100 carburetor in 1960.

In 1967, AJ Industries (Alaska Juneau Gold Mining Company) purchased the company, renamed it IMPCO Carburetion and relocated to Cerritos, California. IMPCO purchased Beam Products Company in 1986 and in 1989, IMPCO became a publicly traded company after a leveraged buyout by AirSensors, Inc.

IMPCO rapidly expanded in the 1990s, with the purchase of the Garretson Equipment Company in 1997, followed by J & S Products and Algas Carburetion in 1998. The company facilities were expanded with the establishment of offices in Europe, Australia, Mexico and Japan and the name changed to IMPCO Technologies.

The Spectrum series of emission certified engines was launched in 2000 and by 2002, IMPCO attained a 70% market share.

In 2003, IMPCO joined the Italian company BRC and in 2006, the two companies were brought together as subsidiaries of Fuel Systems Solutions, Inc. In 2016, IMPCO merged with Westport to become a subsidiary of Westport Fuel Systems.

In 2017, EControls acquired IMPCO's industrial division which included the Santa Ana facility, as well as entities and facilities in The Netherlands, France, Germany, Japan, and South Korea combining to become the pre-eminent systems provider in the industrial and heavy-duty markets. In 2021, Santa Ana production was relocated to San Antonio, Texas.

Over the past 50 years, IMPCO Technologies developed into a global business, serving the needs of customers in every major market with our patented Spectrum® Fuel Management Systems, Certified Engines and traditional gaseous fuel carburetion components. We are the world's leader in the technology, marketing and manufacturing of products and systems which allow internal combustion engines to operate on clean burning gaseous fuels such as LPG and Natural Gas.

## IMPCO Offices

IMPCO Technologies operates business offices and manufacturing facilities around the world, dedicated to assisting OEMs, governments and companies.

### **Headquarters and Production EControls**

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[www.impco.eu](http://www.impco.eu)

## IMPCO Distributors

IMPCO sells through its global distributor network. For product sales and technical information, please contact a distributor near you. For distributors in countries not listed, contact the IMPCO business office in your country for assistance.

All technical and/or product sales questions should be directed towards the distributors listed. Distributors engineer and produce a wide variety of aftermarket conversion kits for on and off highway applications.

**To obtain contact information for IMPCO distributors, click on the link below:**

[www.impcotechnologies.com/purchase-products](http://www.impcotechnologies.com/purchase-products)

## Product Obsolescence

Products that have been obsoleted are denoted with an underline and red text. These parts are no longer in production at IMPCO, although our distributors may have remaining stock available. If not, our distributors or internal support teams will gladly assist you in finding a replacement.

**Please visit the website below for support in finding a replacement to an obsolete part:**

[www.impcotechnologies.com/contact](http://www.impcotechnologies.com/contact)

# Standard LPG Fuel System Engine Maintenance Schedule

(Typically Applicable for CNG)

Perform the following maintenance on the engine at the hours indicated and at equivalent hour intervals thereafter.										
This maintenance schedule represents the manufacturer's recommended maintenance intervals to maintain proper engine/equipment function. Federal, State, or Local regulations may require additional or more frequent inspection or maintenance intervals than those specified above. Check with the authority having jurisdiction for details.	Interval Hours									
	Daily	1000	1500	2000	2500	3000	3500	4000	4500	5000
General Maintenance Section										
Visual check for fluid leaks	X									
Check engine oil level	X									
Check coolant level	X									
Change engine oil and filter	Follow Engine Manufactures Recommendations									
Check LPG system for leaks	After any service or maintenance activity									
Inspect accessory drive belts for cracks, breaks, splits or glazing		X		X		X		X		X
Inspect electrical system wiring for cuts, abrasions or corrosion				X				X		
Inspect all vacuum lines and fittings for cracks, breaks or hardening				X				X		
Engine Coolant Section										
Clean debris from radiator core	Every 100 hours or 60 days of operation									
Change coolant	Follow Engine Manufactures Recommendations									
Inspect coolant hoses for cracks, swelling or deterioration		X		X		X		X		X
Replace coolant hoses and accessory drive belt	Every 2,000 hours or two years, whichever occurs first									
Engine Ignition System										
Inspect Battery case for leaks or damage		X		X		X		X		X
Inspect battery cables for damage corrosion or contamination		X		X		X		X		X
Check all electrical connector retainer locks		X		X		X		X		X
Inspect crank sensor timing wheel for debris or damage	Every 100 hours or 60 days of operation									
Clean ignition coil		X		X		X		X		X
Replace spark plugs			X			X			X	
Replace distributor cap and rotor						X				
Check spark plug wires for cuts abrasions or hardening			X						X	
Replace spark plug wires						X				
Fuel System Maintenance										
Clean air filter element	Every 200 hours, or every 100 hours in dusty									
Replace air filter element	Annually, or Bi-annually in dusty environments									
Replace fuel filter					X					X
Inspect Shut-off Valve for leaks and closing			X			X				
Check throttle linkage for sticking				X				X		
Leak check fuel lines				X				X		
Check air induction for leaks				X				X		
Check manifold for vacuum leaks				X				X		
Check injector & rails for leaks				X				X		
Inspect low pressure regulator for coolant leaks	Annually or every 1500 hours									
Rebuild or replace low pressure regulator	Every 2500 hours									
Engine Exhaust System										
Inspect exhaust manifold for leaks				X				X		
Inspect exhaust piping for leaks				X				X		
Check exhaust carbon monoxide emission and adjust if required			X			X			X	
Inspect muffler for mechanical damage			X						X	

**Note:** propane engines are designed to operate on HD-5 or HD-10 specification LPG fuel. Fuel other than HD-5 or HD-10 may cause harm to the engine's emission control system and a warranty claim may be denied on this basis if operators can readily find the proper fuel\*. Use of any other fuel may result in your engine no longer operating in compliance with CARB or EPA emissions requirements. \*Not Applicable in the state of California.

## Safety



ALL PROCEDURES DESCRIBED IN THIS SECTION SHOULD BE PERFORMED ONLY WHEN THE VEHICLE (IF APPLICABLE) IS IN NEUTRAL ON A LEVEL SURFACE AND THE PARKING BRAKE IS SET.

### WARNING:

**IMPROPER INSTALLATION OR USE OF THIS PRODUCT MAY CAUSE  
SERIOUS INJURY, DEATH AND/OR PROPERTY DAMAGE**

*Natural Gas or LPG Installations in the US:*

- NFPA 37** Standard for the Installation and USE of Stationary Combustion Engines and Gas Turbines  
**NFPA 52** Vehicular Natural Gas Fuel Systems Code  
**NFPA 58** Liquefied Petroleum Gas Code

SERVICE TECHNICIANS AND USERS SHALL CAREFULLY READ AND ABIDE BY THE PROVISIONS SET FORTH IN NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET (NFPA) #37 FOR STATIONARY COMBUSTION ENGINE STANDARDS, NFPA #52 FOR NATURAL GAS FUEL SYSTEMS OR NFPA 58 FOR STORAGE, HANDLING, TRANSPORTATION AND USE OF LPG.

**INSTALLERS** LPG INSTALLATIONS IN THE UNITED STATES MUST BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, LOCAL LAWS AND NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #58, STANDARD FOR STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES, TO THE EXTENT THESE STANDARDS ARE NOT IN VIOLATION OF FEDERAL, STATE AND/OR LOCAL LAW.

**COUNTRIES OUTSIDE OF USA** REFER TO THE GOVERNING AGENCIES OVERSEEING CNG AND PROPANE APPLICATIONS.

**CNG INSTALLATIONS IN THE UNITED STATES** MUST BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, LOCAL LAW AND NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #52, COMPRESSED NATURAL GAS (CNG) VEHICULAR FUEL SYSTEMS, TO THE EXTENT THESE STANDARDS ARE NOT IN VIOLATION OF FEDERAL, STATE OR LOCAL LAW.

**LPG AND/OR NATURAL GAS INSTALLATIONS ON STATIONARY ENGINES** MUST BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, LOCAL LAW AND NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #37, STANDARD FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES, TO THE EXTENT THESE STANDARDS ARE NOT IN VIOLATION WITH FEDERAL, STATE OR LOCAL LAW. FAILURE TO ABIDE BY THE ABOVE WILL VOID ANY IMPCO WARRANTY ON THE PRODUCTS AND MAY CAUSE SERIOUS INJURY OR PROPERTY DAMAGE.

**SERVICE TECHNICIANS** DUE TO THE INHERENT DANGER OF GASEOUS FUELS, IMPCO PRODUCTS MUST NOT BE INSTALLED OR USED BY PERSONS NOT KNOWLEDGEABLE OF THE HAZARDS ASSOCIATED WITH THE USE OF GASEOUS FUELS. ANY MAINTENANCE, SERVICE OR REPAIR SHALL BE PERFORMED BY TRAINED AND EXPERIENCED SERVICE TECHNICIANS.

**PROPER TOOLS AND EQUIPMENT** PROPER TOOLS AND EQUIPMENT MUST BE USED TO PREVENT INJURY TO THE SERVICING TECHNICIAN, PROPERTY OR SYSTEM COMPONENTS. SERVICE REPAIRS SHALL ALWAYS BE PERFORMED IN A SAFE ENVIRONMENT AND THE TECHNICIAN MUST ALWAYS WEAR PROTECTIVE CLOTHING TO PREVENT INJURY.

**INSPECT PRIOR TO USE** ALWAYS INSPECT THE MAJOR CASTING PIECES FOR DAMAGE, CORROSION OR CRACKS BEFORE ATTEMPTING TO SERVICE AND/OR REPAIR. BE SURE THE REPAIR KIT PART NUMBER YOU ARE USING IS CORRECT FOR THE COMPONENT(S) BEING SERVICED.

**NO TEFLON TAPE** DO NOT USE TEFLON TAPE TO SEAL ANY FUEL FITTINGS. FAILURE TO FOLLOW THIS WARNING MAY CAUSE THE REGULATOR TO LEAK INTERNALLY, POSSIBLY RESULTING IN SERIOUS INJURY, DEATH AND/OR PROPERTY DAMAGE AND MAY VOID ANY WARRANTY COVERAGE.

**PROPOSITION 65 WARNING:**  THIS PRODUCT CAN EXPOSE YOU TO CHEMICALS INCLUDING NICKEL, WHICH IS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. FOR MORE INFORMATION GO TO [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## Safety

### **READ BEFORE PERFORMING ANY SERVICE, MAINTENANCE OR REPAIR ON THE FUEL SYSTEM**

There are safety regulations and standards that must be followed when installing or servicing gaseous fuel equipment on engines. It is highly recommended you obtain and read the following National Fire Protection Association (NFPA) guidelines:

- NFPA #37-Combustion Engines
- NFPA #52-CNG Vehicular Fuel Systems
- NFPA #54-National Fuel Gas Codes
- NFPA #58-LP Gas Storage
- NFPA #59-LP Gas Utility Plants
- NFPA #59A-LN Gas Storage and Handling

To order these documents, contact the National Fire Protection Agency at (800) 344-3555 or go to [www.nfpa.org](http://www.nfpa.org), expand the *Codes and Standards* menu, and click on *Document List and Code Cycle Information* to order online.

There are state standards and regulations enforced by the state fire marshal in most states.

There may be other local standards set by counties, cities and municipalities. Be sure to consult all regulatory agencies to assure adherence to all standards in enforcement.

Safety in the workplace is everyone's responsibility. Regardless of the type work you do, it is very important that you pay attention to what you are doing for your safety and the safety of those around you.

### **The following points are things to keep in mind when working on internal combustion engines and gaseous fuel systems:**

- Before working on any fuel system, study the NFPA standard for the fuel in use.
- Before working on any fuel system, read and understand all manufacturers' recommended procedures.
- Before working on any fuel system, make sure you have local code approved safety goggles, face shields, gloves and clothing.
- Before working on any fuel system, make sure there is adequate ventilation.
- Before working on any fuel system, turn OFF the fuel system supply valve and run the engine until it stalls by running out of fuel. If this is not possible, slowly bleed the fuel from all lines before working on the fuel system or engine.
- After working on any fuel system, perform a leak test before starting the engine.

### **Remember:**

- LPG is heavier than air and will sink to the lowest level. Avoid areas near flow drains or lubrication pits where escaped fuel may collect and all sources of ignition.
- Natural Gas is lighter than air and will rise to the highest point. Avoid areas near overhead heaters and all other sources of ignition.



## Carburetion Theory and Operation

**Carburetor:** IMPCO carburetors have an air valve design, utilizing a relatively constant pressure drop to draw fuel into the carburetor from cranking to full load. The advantage of this design is a strong "signal" or vacuum set up by a metering spring (A) holding the air valve (B) closed. A pressure drop (C) under the air valve of approximately 6 inches of w.c. (water column) is required to open the valve during cranking. The vacuum is communicated to the converter (D). Additionally, air/valve vacuum is used to activate the vacuum fuel lock (if equipped with lock/filter).

Once the engine stops, fuel is sealed off within the carburetor, in the converter and fuel lock, providing a triple seal for safety.

The air/fuel metering device (referred to as a mixer), is completely self-contained and does not require a linkage or idle vacuum line to the intake manifold. This construction provides a wide range of flexibility when installing a mixer or complete carburetor.

**Vaporizer.** The IMPCO converter is a combined two-stage regulator and vaporizer. It receives a liquid fuel at tank pressure from the filter fuel lock (E) and reduces that pressure in two stages to slightly less than atmospheric (F). When the

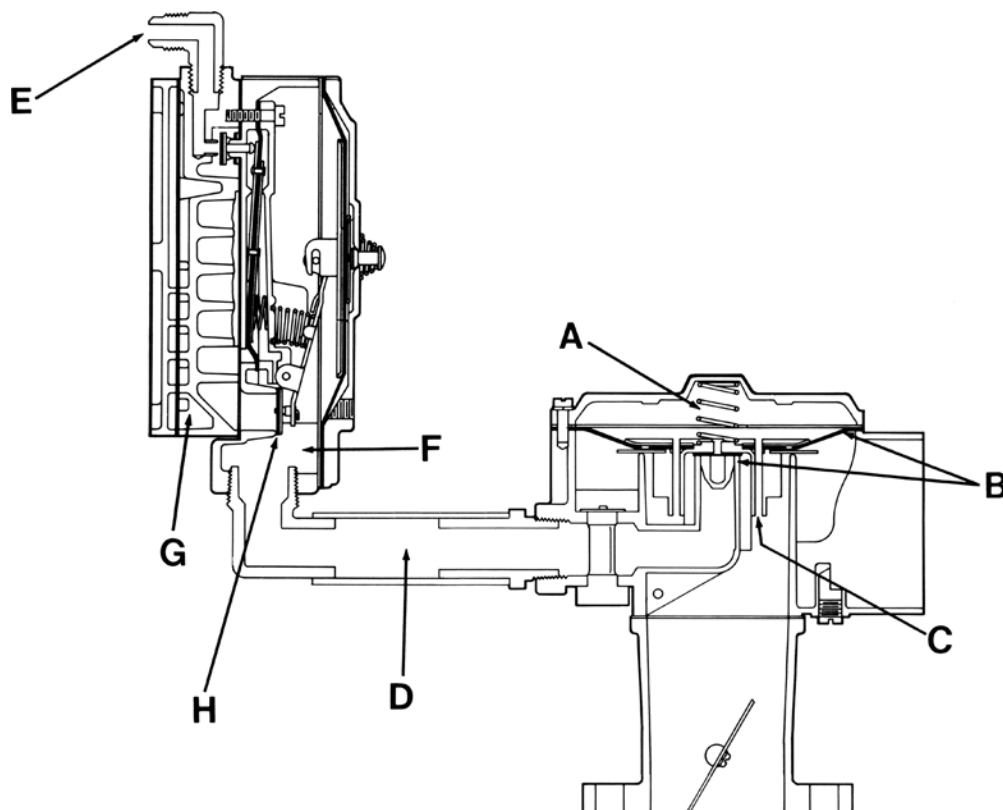
engine is cranking or running, a partial vacuum is created in the fuel line to the carburetor (D), which opens the regulator, permitting fuel to flow to the carburetor.

In the process of reducing the pressure from tank of approximately 180 psi, the liquid LPG expands as it vaporizes, causing refrigeration. To compensate for the cooling effect and to assist in vaporization, water from the engine cooling system is circulated through a heat exchanger (G). The fuel flow is sealed off when the engine is stopped (H).

IMPCO makes various sizes of converters to suit a wide range of horsepower applications. These converters are also available with a variety of options.

**Fuel Lock/Filter.** The IMPCO carburetion system utilizes a fuel lock (not to be confused with the fuel lockoff valve). When a slight vacuum (2" w.c.) occurs, fuel is allowed to flow through a fuel filter and to the vaporizer. When the engine stops, regardless of whether the ignition key is on or off, the fuel is automatically shut off.

A filter is used to remove any large solid particles out of the fuel before entering the high pressure side of the vaporizer.





## Diaphragm Operated Air-Gas Valve Carburetion

Most IMPCO air valve carburetors use diaphragms made of various materials such as synthetic rubber, silicone, hydriin and fiberglass. The Model 55 uses a metal piston with a sealing ring in place of a diaphragm for the purpose of reducing the carburetor size for small engines, however, the same operating principal applies to all. Cranking the engine lowers pressure in shaded area (see illustration below) causing the piston to descend. Through passages (P) in the air valve, the lowered pressure is communicated to the upper side of the diaphragm (D). As a result, atmospheric pressure pushing upward on the diaphragm lifts it against the downward pressure of the metering spring (S).

Approximately 0.2 psi (6" w.c.) of pressure is required to lift the air valve off its seat. Approximately 0.5 psi (13.8" w.c.) lifts the valve to the top of its travel in full open position.

Lowered pressure communicated to the top of the diaphragm varies with engine speed and position of throttle valve opening (T). The air valve assembly measures the airflow into the engine by moving precisely in response to the demands of the engine and throttle valve position.

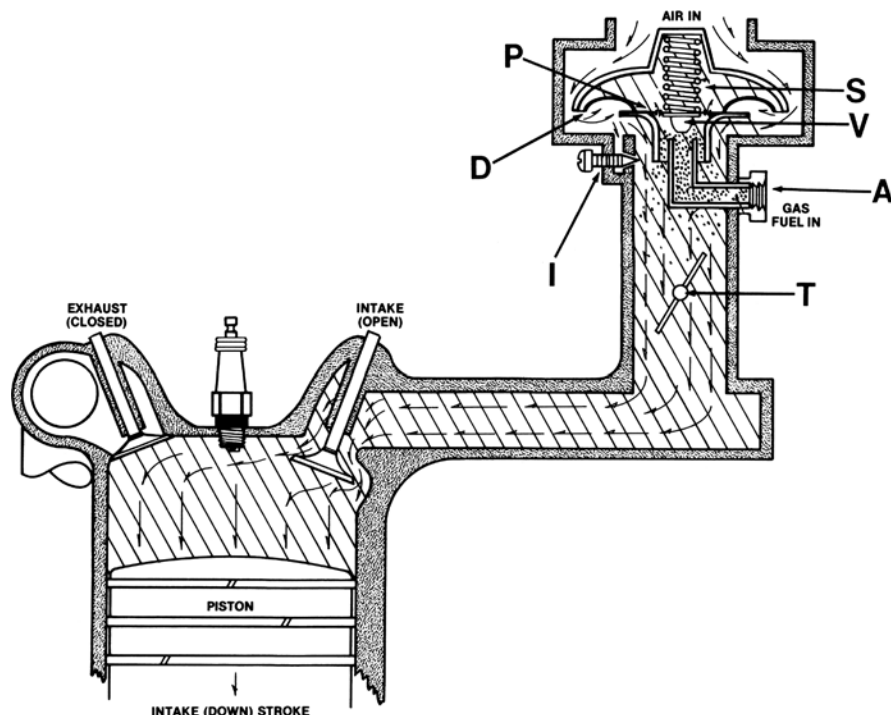
The controlled pressure drop of 0.2 to 0.5 psi (6"-13.8" w.c.) set up by the metering spring provides the signal or force necessary to draw fuel into the

air stream within the carburetor. The gas metering valve (V) is attached to the air valve assembly and is shaped to admit the correct amount of fuel from the gas jet to mix with incoming air at any opening of the air valve.

IMPCO carburetors provide two limited-range mixture adjustments:

1. Idle Air Bypass Adjustment (I). The total volume of air and fuel passing the closed throttle at idle is constant. The idle adjustment bypasses a portion of incoming air around the air valve opening. As the idle adjustment is opened, the air valve partially closes, thereby closing the gas metering valve and leaning the idle air/fuel mixture.
2. Power Mixture Adjustment (A). Controls mixtures when gas metering valve is withdrawn from the jet. This adjustment is effective only when the engine approaches full-load condition and can be set only with the engine loaded, at or close to its rated RPM limit.

Mixtures between idle and full-load conditions are controlled by the shape of the gas metering valve, which is designed to produce lean mixtures at light loads and increasingly rich mixtures at heavier loads and higher engine speeds. The shape of the gas valve is designed for optimum air/fuel mixtures.





## 2) Determining estimated engine airflow requirements

Using the chart on the previous page, find the engine airflow requirements for the engine displacement at its maximum rpms.

To find the estimated airflow requirement for the engine you are converting:

- Locate the engine's displacement (in CID) and maximum rpm on the chart.
- Draw a line across from the CID and down from the rpm.
- Where the lines cross is the airflow requirements (in CFM) for that engine.

Example:

A 351 CID turning 4,000 rpm (wide open throttle). Nearest engine airflow requirement from the chart is 344 cubic feet/minute.

## 3) Selection of proper carburetor/mixer based on the engine's airflow requirements.

The following table gives the horsepower and maximum airflow ratings for IMPCO carburetors using LPG:

Model	Manifold Depression			
	1.5" Hg		2.0" Hg	
	HP (kW)	CFM (Ls)	HP (kW)	CFM (Ls)
55	-	-	73 (54)	118 (56)
60	-	-	73 (54)	95 (45)
100	106 (79)	170 (80)	123 (92)	197 (93)
110	-	-	106 (79)	170 (80)
125	126 (94)	202 (95)	146 (109)	235 (111)
200	172 (128)	276 (130)	215 (160)	345 (163)
200D	-	-	292 (218)	468 (221)
200T	-	-	425 (317)	680 (321)
210	-	-	215 (160)	345 (163)
225	205 (153)	329 (155)	237 (177)	380 (179)
300A (1 & 20)	217 (162)	348 (164)	-	-
300A (50 & 70)	270 (201)	432 (204)	-	-
400VF	-	-	320 (239)	500 (236)
425	287 (214)	460 (217)	333 (248)	533 (252)
600/600VF	-	-	600 (447)	960 (453)
600D/600DVF	-	-	1000 (745)	1600 (755)

**Note:** The above specifications are for LPG. Reduce hp/kW output by 10-15% for Natural Gas.

Mixers or carburetors using natural gas have nominal inlet pressures of +5" w.c. (over atmospheric).

## 4) Determine the engine's displacement and maximum RPM.

Determine the engine's maximum rpm either by locating it on the tachometer (if equipped) or from the user's manual.

## 5) Naturally aspirated engines:

$CID \times RPM \div 1728 \div 2 \times 0.85 = \text{Airflow requirement (CFM)}$ . The engine airflow requirements determined by this equation are for 4-cycle engines with 85% volumetric efficiency. For 2-cycle engines, omit the division by 2.

- Multiply the CID times the rpm.
- Divide the result by 1728 to convert the cubic inches per minute (CIM) to CFM.
- Divide this by 2 for a 4-cycle engine (a 4-cycle engine only has an intake cycle every other revolution). Omit this step if engine is a 2-cycle.
- Multiply by 0.85 (85% volumetric efficiency) to get the engine's airflow requirement.

Example:

351 CID, 4-cycle carbureted engine with a maximum rpm of 2,000:

$$351 \times 2000 \div 1728 \div 2 \times 0.85 = 172.6 \text{ CFM}$$

## 6) Turbocharged Engines (with mixer upstream of turbocharger):

Turbocharged engines supply an additional boost in pressure over a naturally aspirated engine which must be calculated into the equation. To accomplish this:

- Determine the boost pressure of the turbocharger in Pounds per Square Inch (psi).
- Determine the % increase in supplied air pressure.
- The following equation is performed to calculate the percentage (%) increase in supplied air pressure, including atmospheric pressure (at sea level is 14.7 psi):  
 $1 + ((\text{boost pressure in psi}) \div 14.7)$

$$CID \times RPM \div 1728 \div 2 \times 0.85 \times (\% \text{ available pressure increase}) = \text{CFM}$$

Example:

817 CID, 4-cycle turbocharged engine with boost pressure of 6 psi and a maximum rpm of 2,000:

$$817 \times 2000 \div 1728 \div 2 \times 0.85 \times (1 + (6 \div 14.7)) \\ = \\ 817 \times 2000 \div 1728 \div 2 \times 0.85 \times 1.41 = 567 \text{ CFM}$$

## Fuel Type and Regulator

It is imperative that the fuel type and regulator be matched. Some regulators are designed for both liquid and vapor while others are designed only for vapor. Those regulators designed for both liquid and vapor can accommodate both types of fuels, however, there is a decrease in performance (maximum rated horsepower) when only vapor is used. **NEVER USE LIQUID FUEL IN A REGULATOR DESIGNED FOR VAPOR ONLY.**

## Diaphragm Material

Three diaphragm materials are commonly used, depending on the application:

**BLACK:** Hydrin diaphragm material is the standard material and is well suited for the most common applications.

**YELLOW:** Silicone diaphragm material is the optional upgrade material that provides excellent flexibility in cold weather climates and is more resistant to chemical contamination.

**BLUE:** Fluorosilicone diaphragm material provides excellent high and low temperature durability with increased chemical resistance. This material is recommended for turbo applications

## UL Certifications

If a part is noted in the catalog as “UL listed,” its UL file may also be listed on UL’s Online Certifications directory:

[UL Product iQ Directory Link](#)

## Other Certifications

Most applicable UL listings and certifications are noted under component specifications, however, many IMPCO components have been certified to meet additional standards such as ULC, ISO, ECE and others from countries and organizations around the globe. Please contact your IMPCO sales representative for all current component certifications.

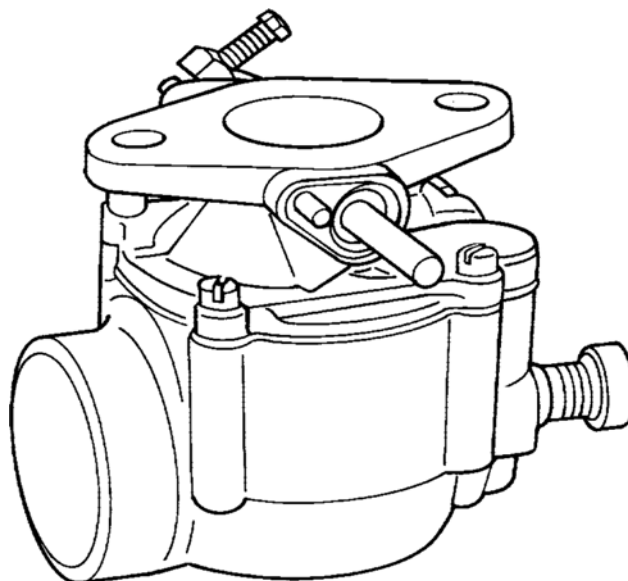
## General Motors Parts

Parts supplied by General Motors (as noted throughout the catalog as “GM” and supplied through the GM parts distribution network) are no longer available through IMPCO and must be ordered directly through GM or a distributor of GM parts. GM parts listed in this catalog are for reference only and are not available through IMPCO

# Carburetors & Mixers

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## Model CA55



### DESCRIPTION

IMPCO's CA55 model carburetors are offered in four design variations, providing proven, effective solutions for optimum metering and delivery of either LPG vapor or Natural Gas. The standard model can be mounted in either an updraft, downdraft, or side draft orientation, supplying either LPG or Natural Gas to engines up to 73 hp (54.0 kW), with a flow rate of 118 CFM (55.7 L/s). Various SAE flanges and air horn sizes are available.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Any
Diaphragm Material .....	N/A
HP/kW Rating .....	Up to 73 hp (54.0 kW) @ 118 CFM (55.7 L/s) and 2.0" Hg manifold depression

Model CA55

Carburetors & Mixers

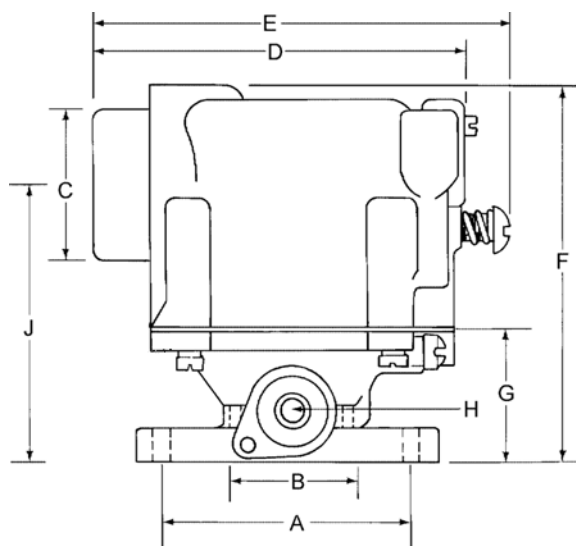


# Model CA55

## Carburetors & Mixers



### DIMENSIONS



Carburetor	Mixer	Throttle Body	SAE Flange	NPT Fuel Inlet	A Center to Center Bolt Spacing	B Bore	C Air Horn Diameter	D Overall Width	E Max Width Incl. Idle Screw	F Overall Height	G Throttle Body Height	H Throttle Shaft Dia.	J Flange to Ctr. Of Air Horn
<u>CA55-4<sup>^</sup></u>	CA55M-2	AT2-25	3/4"	3/8"	57.2mm (2.250")	27.0mm (1.188")	41.3 mm (1.875")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
<u>CA55-6<sup>^</sup></u>	CA55M-4	AT2-26	1"	3/8"	60.3 mm (2.375")	30.2 mm (1.188")	47.6 mm (1.875")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
CA55-8	CA55M-5	AT2-27	1 1/4"	3/8"	68.3 mm (2.688")	30.2 mm (1.188")	52.4 mm (2.063")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
CA55-017	CA55M-5	BT2-27-322	1"	3/8"	60.3 mm (2.375")	30.2 mm (1.188")	52.4 mm (2.063")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
CA55-20	CA55M-2	AT2-26	1"	3/8"	60.3 mm (2.375")	30.2 mm (1.188")	41.3 mm (1.625")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
<u>CA55-20-2<sup>^</sup></u>	<u>CA55M-2-2<sup>*</sup></u>	AT2-26	1"	3/8"	60.3 mm (2.375")	30.2 mm (1.188")	41.3 mm (1.625")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
<u>CA55-40<sup>^</sup></u>	CA55M-5	AT2-26	1"	3/8"	60.3 mm (2.375")	30.2 mm (1.188")	52.4 mm (2.063")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
<u>CA55-64<sup>^</sup></u>	CA55M-2	BT2-26-8*	1"	3/8"	60.3 mm (2.375")	30.2 mm (1.188")	41.3 mm (1.625")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
CA55-66	CA55M-2	BT2-26-8*	1"	3/8"	60.3 mm (2.375")	30.2 mm (1.188")	41.3 mm (1.625")	96.9 mm (3.813")	122 mm (4.813")	95.3 mm (3.750")	33.4 mm (1.313")	6.4 mm (.250")	71.5 mm (2.813")
CA55-171	NSS	BT2-71-2	3/4"	3/8"	76.0 mm (2.992")	32.5 mm (1.28")	52.1 mm (1.97")	142.5 mm (5.6")	142.5 mm (5.6")	133 mm (5.27")	33.4 mm (1.313")	6.4 mm (.250")	

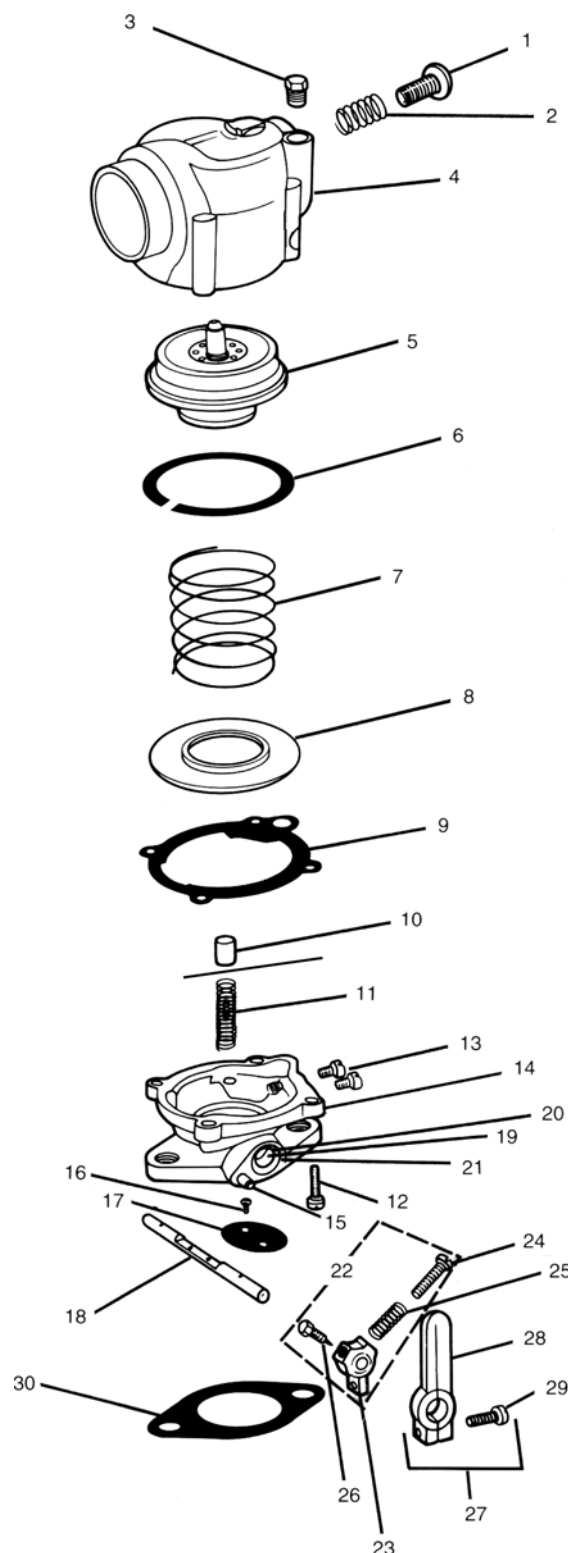
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



## COMPONENTS

ITEM	P/N	DESCRIPTION
1	NSS	Screw, idle
2	NSS	Spring, idle screw
3	NSS	Plug, 1/8 NPT
4	NSS	Body assy
5	NSS*	Air valve Assy
	NSS	Air valve Assy (Rich)
6	NSS*	Ring, air valve sealing
7	NSS	Spring, air valve
	NSS	Spring, air valve, light tension
8	NSS*	Plate, ass'y
9	NSS*	Gasket, throttle body to mixer
10	NSS	Piston, idle cutoff
11	NSS	Spring, idle cutoff
12	NSS	Screw, 10-24 x 5/8" SEMS (4)
13	NSS*	Screw, 1/4-28 x 5/16(2)
14	NSS	(Refer to AT2 Throttle body charts)
15	NSS	Pin, throttle stop (2)
16	NSS	Screw, 6-32 x 1/4 SAE (2)
17	NSS	Butterfly, 19.1 mm (.750")
	NSS	Butterfly, 25.4mm (1.000)
18	S5-6	Throttle shaft, 6.4mm (.250) dia.
19	NSS	Bearing, Oilite, 6.4mm (.250") ID. (2)
	NSS	Bearing, Needle, .687 x .500 x .625
20	NSS	Seal, 6.4mm (.250") shaft (2)
21	NSS	Ring, seal retainer (2)
22	AL1-8-1	Throttle stop ass'y: 6.4mm (.250) ID.
23	NSS	Throttle stop lever
24	NSS	Stop screw, 10-32 x 3/4
25	S2-15	Spring, idle stop screw
26	S1-18	Pin screw, throttle stop
27	AL1-7-1	Throttle lever w/screw
28	NSS	Throttle lever
29	NSS	Screw, 10-24 x 5/8"
	NSS	Gasket, 1/2 SAE flange
	NSS	Gasket, 3/4" SAE flange
30	NSS	Gasket, 1" SAE flange
	G1-18	Gasket, 1-1/4" SAE flange
	NSS	Gasket, flange

\*Included in Repair Kit



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES &amp; ACCESSORIES

## MIXER ASSEMBLIES

P/N	BODY ASS'Y	AIR/GAS VALVE	AIR HORN DIA.	OVERALL WIDTH	OVERALL HEIGHT
CA55M-1	NSS	AV1-14925	38.1mm (1.500")	81.0mm (3.188")	61.9mm (2.438")
CA55M-2	NSS	AV1-14925	41.3mm (1.625")	81.0mm (3.188")	61.9mm (2.438")
CA55M-4	NSS	AV1-14925	47.6mm (1.875")	81.0mm (3.188")	61.9mm (2.438")
CA55M-5	NSS	AV1-14925	52.4mm (2.063")	81.0mm (3.188")	61.9mm (2.438")

## THROTTLE BODIES

P/N	DESCRIPTION
AT2-26	1" SAE flange, 6.4 (0.25") shaft dia.
AT2-26-2	1" SAE flange, 6.4 (0.25") shaft dia., w/ vacuum advance
AT2-27	1-1/4" SAE flange, 6.4 (0.25") shaft dia.
AT2-27-2	1-1/4" SAE flange, 6.4 (0.25") shaft dia., w/ vacuum
<u>AT2-44^</u>	Metric, 53.0 mm (2.087"), 27.0 mm (1.063") bore, offset

## REPAIR KIT

P/N	DESCRIPTION
RK-CA55	Repair Kit, Mdl CA55
RK-CA55-2	Repair Kit, CA55 Carb Lean

## BRACKET (OPTIONAL)

P/N	DESCRIPTION
<u>AB4-23^</u>	Bracket Assy, Bodwn Wire: B4-23, C2-1, S1-8

## LEVERS

P/N	DESCRIPTION
AL1-7-1	Assembly, 44.4 mm (1.75") long (standard)
<u>AL1-7-2^</u>	Assembly, with 6.4 mm (.25") ball stud, 44.4 mm (1.750") long
AL1-7-3	Assembly, 33.4 mm (1.313") long
AL1-7-4	Assembly, w/ swivel, 44.4 mm (1.75") long
<u>AL1-7-5^</u>	Assembly, w/ Wisconsin swivel, 6.4 mm (0.25") mounting
AL1-8-1	Stop assembly, 6.4 mm (0.25") mounting I.D., 19.1 mm (.75") wide (standard)
<u>AL1-25-1^</u>	Assembly, spring loaded, floating, 6.4 mm (0.25") mounting I.D., 34.9 mm (1.375") long
AL1-26-1	Assembly, floating, 6.4 mm (.25") mounting I.D., 54.0 mm (2.125") long
AL1-31	Assembly, shaft clamp, 6.4 mm (.250") mounting I.D., 49.2 mm (1.938") long

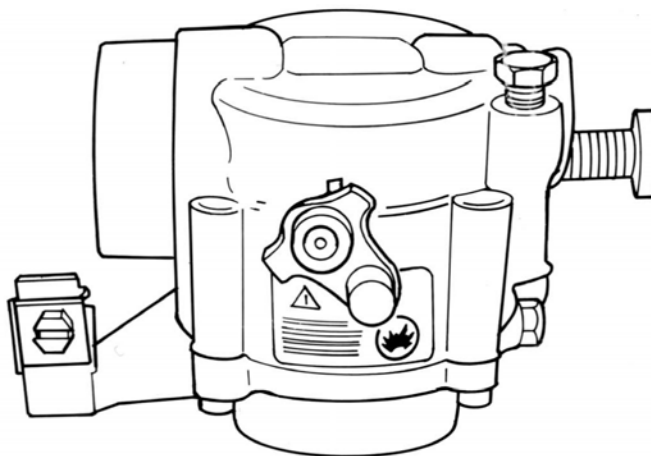
## TAMPER RESISTANT MIXER ASSEMBLIES

P/N	BODY ASS'Y	AIR/GAS VALVE	AIR HORN DIA.	OVERALL WIDTH
<u>CT55M-5-1^</u>	<u>AB1-35-4^</u>	AV1-14925 (std.)		
		AV1-14925-3^ (rich)		
<u>CT55M-5-3^</u>	<u>AB1-35-4^</u>	AV1-14925 (std.)		
		AV1-14925-3^ (rich)		

## EXPANSION PLUGS

P/N	DESCRIPTION
P3-17956-3	Expansion Plug

## Model CA55-250L



### DESCRIPTION

Engineered for bi-fuel applications, this model features a movable air-valve assembly, thus providing additional airflow requirements of LPG Vapor or Natural Gas in gasoline bi-fuel applications. It is designed for use on engines up to 73 hp (54.0 kW), with a flow rate of 118 CFM (55.7 L/s).

### SPECIFICATIONS

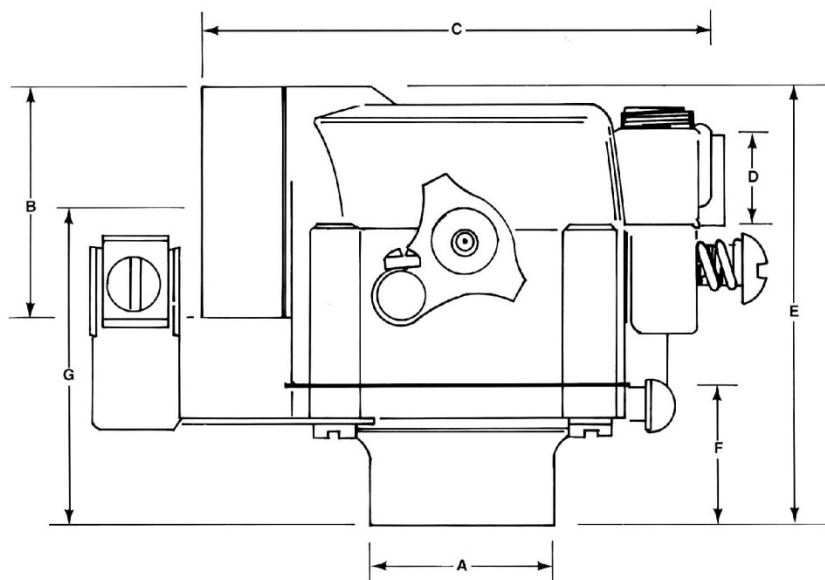
Fuel Type .....	LPG Vapor or Natural Gas, Bi-Fueled with Gasoline
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Any
Diaphragm Material .....	N/A
HP/kW Rating .....	Up to 73 hp (54.0 kW) @ 118 CFM (55.7 L/s) and 2.0" Hg manifold depression

# Model CA55-250L

## Carburetors & Mixers



### DIMENSIONS



		A	B	C	D		E	F	G
		HOSE		MAX WIDTH				HOSE	FLANGE TO
STD. CARB.	HOSE ADAPTER	ADAPTER DIA.	AIR HORN DIA.	OVERALL WIDTH	INCL. IDLE SCREW	NPT FUEL INLET	OVERALL HEIGHT	ADAPTER HEIGHT	AIR HORN FLANGE
CA55-256L	A3-83	47.6 mm (1.875")	47.6 mm (1.875")	96.9 mm (3.813")	127 mm (5.000")	3/8"	88.9 mm (3.500")	25.4 mm (1.000")	63.5 mm (2.500")
CA55-258 (no lifter)	A3-84	52.4 mm (2.063")	52.4 mm (2.063")	96.9 mm (3.813")	127 mm (5.000")	3/8"	88.9 mm (3.500")	25.4 mm (1.000")	63.5 mm (2.500")
CA55-258L	A3-84	52.4 mm (2.063")	52.4 mm (2.063")	96.9 mm (3.813")	127 mm (5.000")	3/8"	88.9 mm (3.500")	25.4 mm (1.000")	63.5 mm (2.500")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model CA55-250L

## Carburetors & Mixers



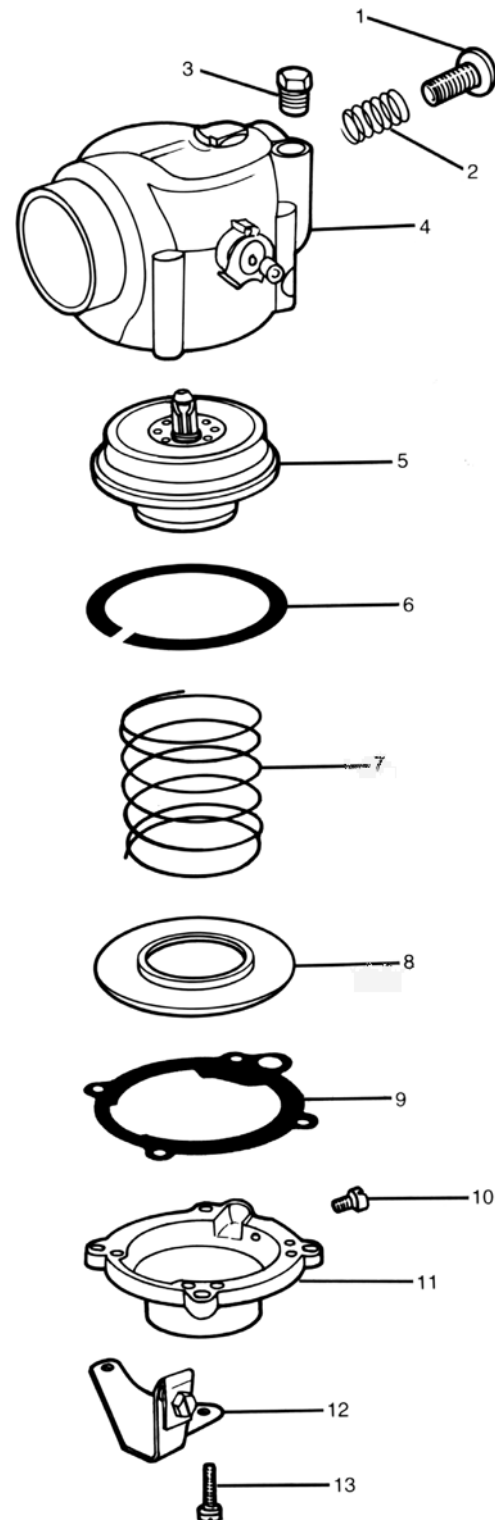
# COMPONENTS

ITEM	P/N	PART DESCRIPTION
1	NSS	Screw , idle
2	NSS	Spring, idle screw
3	NSS	Plug, 1/8NPT
4	NSS	Body Assy
5	NSS*	Air valve Assay (std.)
6	NSS*	Ring, Air Valve Sealing
7	NSS	Spring, air valve
	NSS	Spring, Air Valve (Europe)
8	NSS*	Plate Assay
9	NSS*	Gasket, throttle body to mixer
10	NSS	Screw , 114-28x5/16(2)
11	NSS	Adapter hose mount, 38.1 mm (1.500)
	NSS	Adapter hose mount, 41.3 mm (1.625)
	NSS	Adapter hose mount, 47.6 mm (1.875)
	A3-84	Adapter hose mount, 52.4 mm (2.063)
	NSS	Adapter hose mount, 58.8mm (2.313)
12	NSS	Bracket Assembly, Boden wire
13	S1-3*	Screw , 10-24x5/8" SEMS(4)

\*Included in repair kit

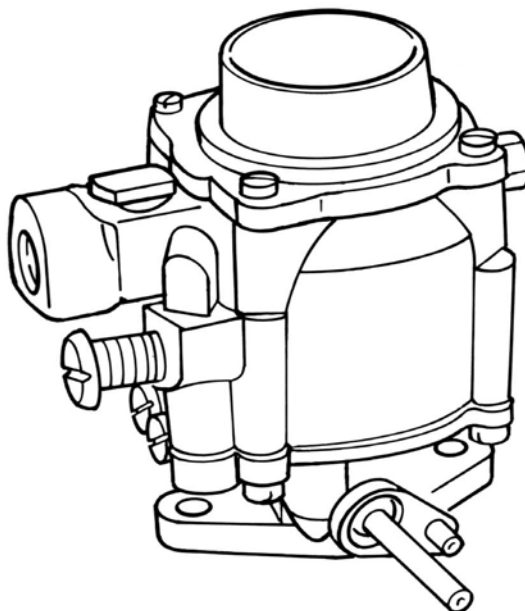
## REPAIR KIT

P/N	DESCRIPTION
RK-CA55	Repair Kit, Model CA55
RK-CA55-2	Repair Kit, CA55 Carb Lean



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model CA55-500L



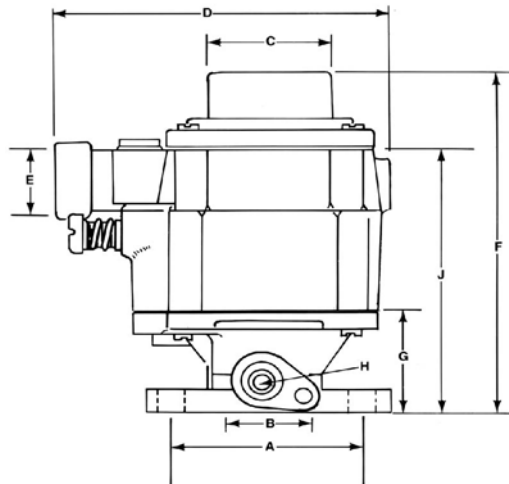
### DESCRIPTION

This Model CA55 is for use with either LPG Vapor or Natural Gas on engines up to 75 hp (55.9 kW) with a flow rate of 118 CFM (59.0 L/s). This flow-through design may be mounted in either a downdraft, updraft, or side draft configuration. Various air horns and flange sizes are available.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Any
Diaphragm Material .....	N/A
HP/kW Rating .....	Up to 75 hp (55.9 kW) @ 118 CFM (55.7 L/s) and 2.0" Hg manifold depression

## DIMENSIONS



# Model CA55-500L

## Carburetors & Mixers



					A	B	C	D	E	F	G	H	J
Standard Carb	Mixer	Throttle Body	SAE Flange	Air Horn Adapt.	Ctr. To Ctr. Bolt Spacing	Bore	Air Horn Dia.	Overall Width	NPT Fuel Inlet	Overall Height	Throttle Body Height	Throttle Shaft Dia.	Flange to Top of Mixer
CA55-271	Replacement carburetor for Toyota 4Y engine												
<u>CA55-503<sup>A</sup></u>	CA55M-500	BT2-27-173	1-1/4"	<u>A2-66<sup>A</sup></u>	68.3 mm (2.375")	30.2 mm (1.188")	57.2 mm (1.875")	104.8 mm (4.125")	3/8"	112.7 mm (4.438")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-508	CA55M-500	AT2-27	1-1/4"	A2-39	68.3 mm (2.688")	30.2 mm (1.188")	52.4 mm (2.063")	104.8 mm (4.125")	3/8"	112.7 mm (4.438")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
<u>CA55-510<sup>A</sup></u>	CA55M-500	AT2-27	1-1/4"	A2-41	68.3 mm (2.688")	30.2 mm (1.188")	74.6 mm (2.938")	104.8 mm (4.125")	3/8"	117.5 mm (4.625")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
<u>CA55-524<sup>A</sup></u>	CA55M-500	BT2-26-6L	1"	A2-35	60.3 mm (2.375")	30.2 mm (1.188")	54.0 mm (2.125")	104.8 mm (4.125")	3/8"	112.7 mm (4.438")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-542	CA55M-500	BT2-26-4	1"	A2-35	60.3 mm (2.375")	30.2 mm (1.188")	54.0 mm (2.125")	104.8 mm (4.125")	3/8"	112.7 mm (4.438")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-553	CA55M-500	BT2-26-7	1"	<u>A2-65<sup>A</sup></u>	60.3 mm (2.375")	30.2 mm (1.188")	49.2 mm (1.938")	104.8 mm (4.125")	3/8"	128.6 mm (5.063")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-553-2 <sup>A</sup>	CA55M-500	<u>BT2-26-7<sup>A</sup></u>	1"	<u>A2-65<sup>A</sup></u>	60.3 mm (2.375")	30.2 mm (1.188")	49.2 mm (1.938")	104.8 mm (4.125")	3/8"	128.6 mm (5.063")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-576	CA55M-500	<u>BT2-44-1<sup>A</sup></u>		<u>A2-59<sup>A</sup></u>	53.0 mm (2.087")	27.0 mm (1.063")	43.0 mm (1.693")	104.8 mm (4.125")	3/8"	112.7 mm (4.438")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-577	CA55M-500	<u>BT2-44-2<sup>A</sup></u>		<u>A2-59<sup>A</sup></u>	53.0 mm (2.087")	27.0 mm (1.063")	43.0 mm (1.693")	104.8 mm (4.125")	3/8"	112.7 mm (4.438")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-577-2	CA55M-500	<u>BT2-44-2<sup>A</sup></u>		<u>A2-59<sup>A</sup></u>	53.0 mm (2.087")	27.0 mm (1.063")	43.0 mm (1.693")	104.8 mm (4.125")	3/8"	112.7 mm (4.438")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-577-3	CA55M-500	<u>BT2-44-2<sup>A</sup></u>			53.0 mm (2.087")	27.0 mm (1.063")	43.0 mm (1.693")	104.8 mm (4.125")	3/8"	112.7 mm (4.438")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-596*	CA55M-500	BT2-27-027	1-1/4"	<u>A2-61<sup>A</sup></u>	68.3 mm (2.688")	30.2 mm (1.188")	63.5 mm (2.500")	104.8 mm (4.125")	3/8"	103.2 mm (4.063")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
<u>CA55-596-2<sup>A</sup></u>	CA55M-500	BT2-27-027	1-1/4"	<u>A2-61-2<sup>A</sup></u>	68.3 mm (2.688")	30.2 mm (1.188")	63.5 mm (2.500")	104.8 mm (4.125")	3/8"	103.2 mm (4.063")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-598-2 <sup>A</sup>	CA55M-500	AT2-27-2	1-1/4"	<u>A2-61-2<sup>A</sup></u>	68.3 mm (2.688")	30.2 mm (1.188")	63.5 mm (2.500")	104.8 mm (4.125")	3/8"	103.2 mm (4.063")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-599-2	CA55M-500	<u>BT2-27-6<sup>A</sup></u>	1-1/4"	A2-61-2 <sup>A</sup>	68.3 mm (2.688")	30.2 mm (1.188")	63.5 mm (2.500")	104.8 mm (4.125")	3/8"	103.2 mm (4.063")	33.4 mm (1.313")	6.4 mm (.250")	87.3 mm (3.438")
CA55-756M	AB1-38	Mixer Only	N/A	A3-84	N/A	N/A	52.4 mm (2 1/16")		3/8"			N/A	

## COMPONENTS

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



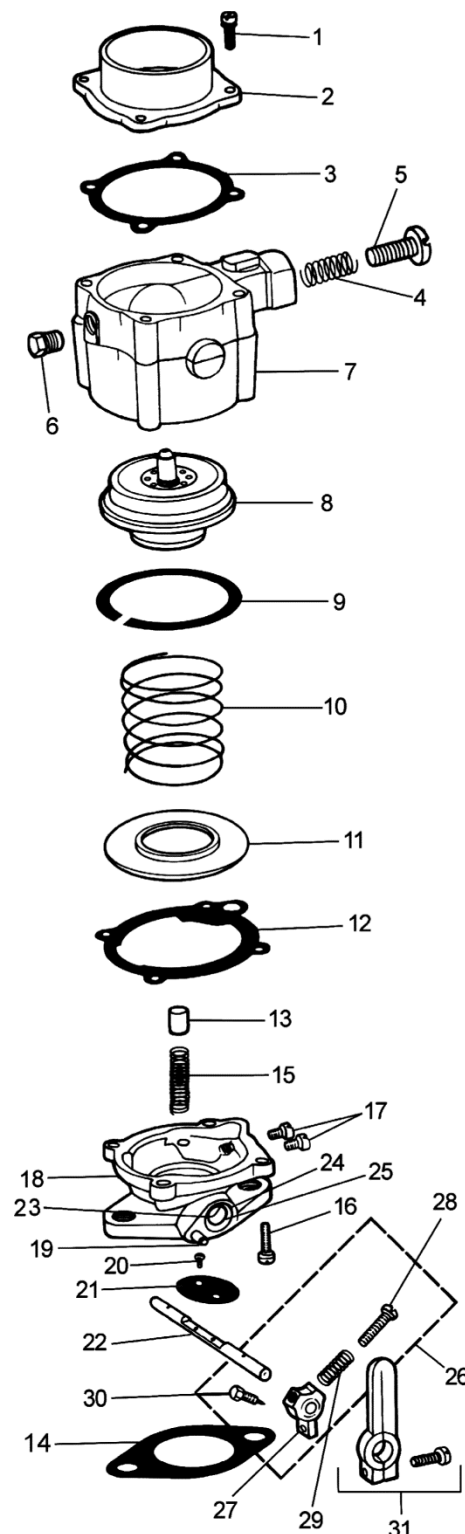
# Model CA55-500L

## Carburetors & Mixers



Item	Part	Description
1	S1-3	Screw, 10-24 x 5/8" SEMS (4)
2	See Table	Air Horn Adapter, Ref. to table in Acces.
3	G1-101	Gasket, air horn
4	NSS	Spring, Idle Screw
5	NSS	Screw, idle
6	NSS	Plug, 1/8" pipe
7	NSS	Body Assy
8	NSS*	Air Valve Assy (std.)
9	NSS*	Ring, Air Valve Sealing
10	NSS	Spring, Air Valve
11	NSS*	Plate Assy
12	NSS*	Gasket, Throttle Body to Mixer
13	NSS	Piston, Idle Cutoff
14	NSS	Gasket, 1/2" SAE Flange
	NSS	Gasket, 3/4" SAE Flange
	NSS	Gasket, 1" SAE Flange
	G1-18	Gasket, 1-1/4" SAE Flange
15	NSS	Spring, Idle Cutoff
16	S1-3*	Screw, 10-24 x 5/8" SEMS (4)
17	NSS	Screw, 1/4-28 x 5/16" (2)
18	NSS	Throat, 1/2" SAE flange
19	NSS	Pin, Throttle Stop
20	S1-22	Screw, 6-32 x 1/4" SEMS (2)
21	NSS	Butterfly, 19.1 mm (.750")
	NSS	Butterfly, 25.4 mm (1.000")
22	NSS	Throttle Shaft, 6.4 mm (.250") dia.
23	NSS	Bearing, Oilite, 6.4 mm (.250") ID. (2)
24	NSS	Seal, 6.4 mm (.250") shaft (2)
25	NSS	Ring, Seal Retainer (2)
26	AL1-8-1	Throttle Stop Ass'y., 6.4mm (.250") ID.
27	NSS	Throttle Stop Lever
28	NSS	Stop Screw, 10-32 x 3/4"
29	NSS	Spring, Idle Stop Screw
30	S1-18	Screw Pin, Throttle Stop
31	AL1-7-1	Throttle Lever w/Screw

\*Included in repair kit



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES & ACCESSORIES

### MIXER ASSEMBLIES

MIXER	BODY ASSY	AIR/GAS VALVE	OVERALL WIDTH	OVERALL HEIGHT
CA55M-500	NSS	AV1-14925	104.8MM (4.125")	57.2MM (2.250")
CA55M-500-2	NSS	AV1-14926	104.8MM (4.125")	57.2MM (2.250")
CA55M-500-4	NSS	AV1-14925	104.8MM (4.125")	57.2MM (2.250")
CA55M-500-9	NSS	AV1-14925	104.8MM (4.125")	57.2MM (2.250")
CA55M-500	NSS	AV1-14925	104.8MM (4.125")	57.2MM (2.250")

### THROTTLE BODIES

PART #	DESCRIPTION
AT2-25	3/4" SAE Flange 6.4mm (.250") shaft dia.
<u>AT2-25-2^</u>	advance
AT2-26	1" SAE Flange 6.4mm (.250") shaft dia.
AT2-26-2	advance
AT2-27	1 1/4" SAE Flange 6.4mm (.250") shaft dia.
AT2-27-2	advance
<u>AT2-27-4^</u>	AS2-50-1
<u>AT2-44-577^</u>	Metric, 53.0mm (2.087") 1-1/16" bore, offset (modified)

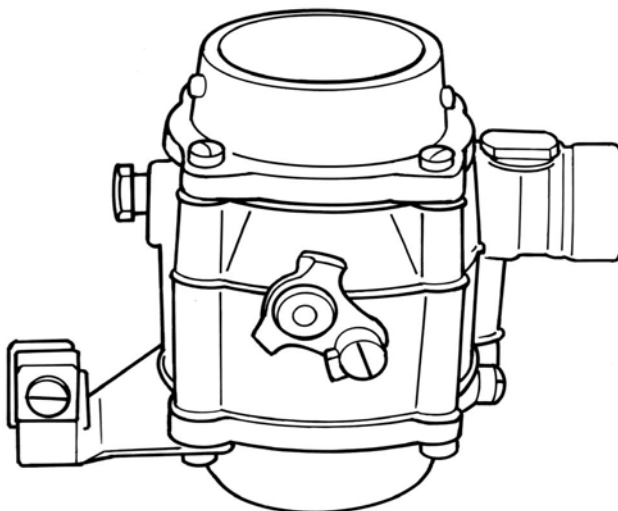
### AIR HORN ADAPTERS

PART #	DESCRIPTION
<u>A2-36^</u>	1.500" (38.1mm) dia.
<u>A2-37^</u>	1 5/8" (41.3mm) dia.
A2-38^	1 7/8" (47.6mm) dia.
A2-39	2 1/16" (52.4mm) dia.
A2-41	2.312" (58.8mm) dia.
<u>A2-44^</u>	AF1-5 Air Cleaner to CA55-500 Series Adapter
A2-59^	Adapter, Air Cleaner 1.69" OD
<u>A2-61-2^</u>	Air Horn Adapt., tapped 8 mm
A2-65^	Air Horn, Toyot 4Y CA55

### LEVERS (See Lever Section for Other Lever Options)

PART #	DESCRIPTION
<u>AL1-25-1^</u>	mounting ID, 54.00mm (2.125") Long
AL1-26-1	(2.125") Long
AL1-31	49.2mm (1.938") Long

## Model CA55-750L



### DESCRIPTION

The Model CA55-750L is a 118 CFM (59.0 L/s) bi-fuel mixer, suitable for engines up to 73 hp (54.0 kW). The moveable air/valve assembly optimizes airflow for LPG Vapor or Natural Gas in gasoline bi-fuel applications. The flow-through design allows mounting in the inlet air stream. Various Air Horn sizes are available to suit individual applications.

### SPECIFICATIONS

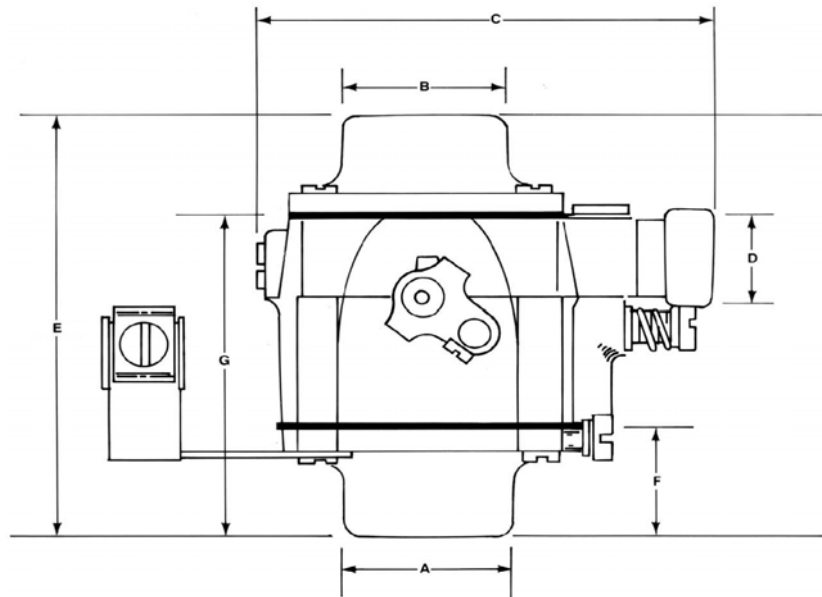
Fuel Type .....	LPG Vapor or Natural Gas, Bi-Fueled with Gasoline
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Any
Diaphragm Material .....	N/A
HP/kW Rating .....	Up to 75 hp (55.9 kW) @ 118 CFM (55.7 L/s) and 2.0" Hg manifold depression

# Model CA55-750L

## Carburetors & Mixers



### DIMENSIONS

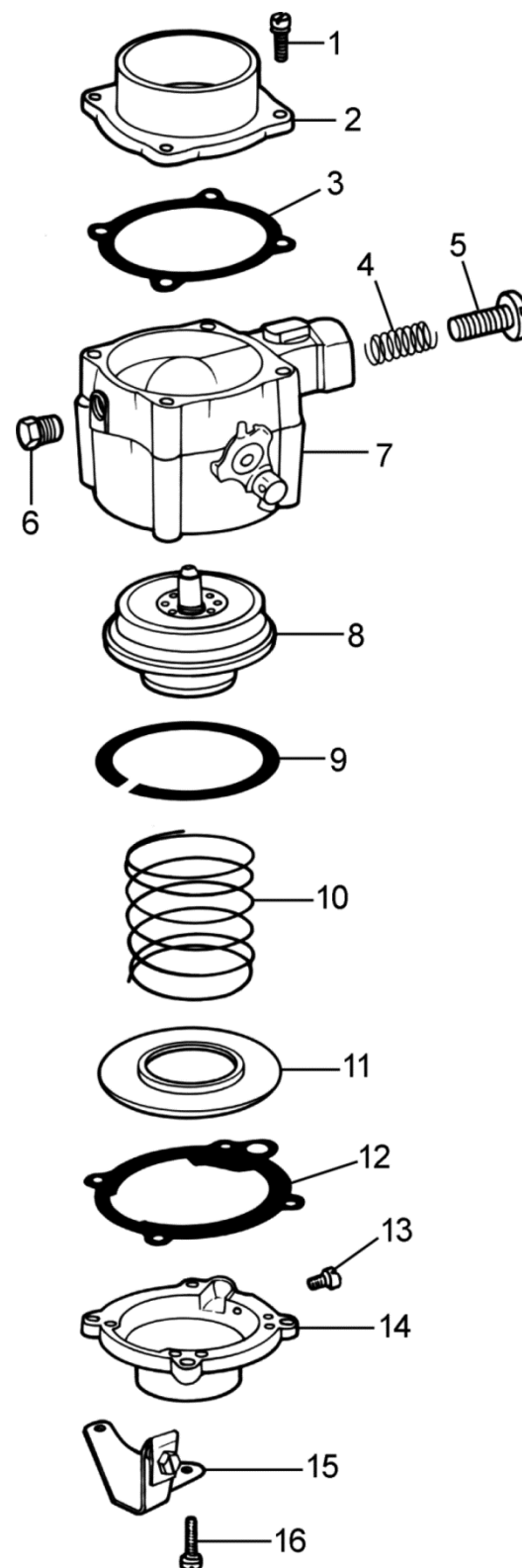


STD. CARB	MIXER	HOSE ADAPTER	MIXER AIR HORN	HOSE ADAPTER DIA.	MIXER AIR HORN DIA.	OVERALL WIDTH	NPT FUEL INLET	OVERALL HEIGHT	HOSE ADAPTER HEIGHT	FLANGE TO AIR HORN FLANGE
CA55-754L	<u>CA55M-750L^</u>	NSS	NSS	47.6 mm (1.875")	47.6 mm (1.875")	104.8 mm (4.125")	3/8"	104.8 mm (4.125")	25.4 mm (1.000")	79.4 mm (3.125")
CA55-756L	<u>CA55M-750L^</u>	A3-84	NSS	52.4 mm (2.063")	52.4 mm (2.063")	104.8 mm (4.125")	3/8"	104.8 mm (4.125")	25.4 mm (1.000")	79.4 mm (3.125")
<u>CA55-758L^</u>	<u>CA55M-750L^</u>	NSS	A2-41	58.8 mm (2.313")	58.8 mm (2.313")	104.8 mm (4.125")	3/8"	104.8 mm (4.125")	25.4 mm (1.000")	79.4 mm (3.125")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### COMPONENTS

ITEM	PART	DESCRIPTION
1	S1-3	Screw, 10-24 x 5/8" SEMS (4)
2	See Table	Air horn adapter (refer to table for proper size)
3	G1-101	Gasket air horn
4	NSS	Spring, idle screw
5	NSS	Screw, idle
6	NSS	Plug, 1/8"NPT
7	NSS	Body ass'y, complete w/lifter
8	NSS*	AI valve ass'y
	NSS	Air valve ass'y (lean)
	NSS	Air valve ass'y (Europe)
9	NSS*	Ring, air valve sealing
10	NSS	Spring, air valve
	NSS	Spring, air valve (Europe)
11	NSS*	Plate ass'y
12	NSS*	Gasket throttle body to mixer
13	NSS	Screw, 1/4-28 x 5/16" (2)
14	NSS	Adapter, hose mounting, 38.1mm (1.500")
	NSS	Adapter, hose mounting, 41.3mm (1.625")
	NSS	Adapter, hose mounting, 47.6mm (1.875")
	A3-84	Adapter, hose mounting, 52.4mm (2.063")
	NSS	Adapter, hose mounting, 58.8mm (2.313")
15	NSS	Bracket ass'y, Boden wire
16	S1-3*	Screw, 10-24 x 5/8" SEMS (4)



\*Included in Repair Kit

## ASSEMBLIES & ACCESSORIES

### MIXER ASSEMBLIES

Standard Mixer	Body Assy	Air/Gas Valve	Overall Width	NPT Fuel Inlet	Overall Height
CA55M-750L	NSS	AV1-14925	104.8 mm (4.125")	3/8"	57.2mm (2.250")

### AIR HORN ADAPTERS

PART#	DESCRIPTION
<u>A2-36</u>	38.11mm (1.500") dia.
<u>A2-37^</u>	41.3mm (1.625") dia.
A2-38	47.6mm (1.875") dia.
A2-39	52.4mm (2.063") dia.
A2-41	58.8mm (2.313") dia.
<u>A2-44^</u>	AF1-5 air cleaner to CA55-500 Series adapter

### AIR CLEANERS (OPTIONAL)

PART#	DESCRIPTION
<u>AF1-5</u>	Assy 4.25 m3/min (150 cfm), 171.5 mm (6.750") O.D. 60.3 mm (2.375") high

### REPAIR KIT

P/N	DESCRIPTION
RK-CA55	Repair Kit, Mdl CA55

## CA55 Mixers & Carburetors

### CA55 SERIES 90° AIR HORN CARBURETORS

PART#	DESCRIPTION
CA55-20	Carb, 1" SAE flange 1-5/8" Air Horn
<u>CA55-20-2</u>	Carb, 1" SAE flange 1-5/8" Air Horn, lean air gas valve ass'y.
CA55-258	Carb, 2-1/16" hose, 2-1/16" Air Horn w/o lifter
CA55-258L	Carb, 2-1/16" Air Horn, 2-1/16" hose, dual fuel, w/ lifter
CA55-271	Carburetor
<u>CA55-4</u>	Carb, 3/4" SAE flange, 1-5/8" Air Horn
<u>CA55-40</u>	Carb, 1" SAE flange, 2-1/16" Air Horn
<u>CA55-6</u>	Carb, 1" SAE flange, 1-7/8" Air Horn
<u>CA55-64</u>	Carb, 1" SAE flange, 1-5/8" Air Horn, w/ 1/4" hole in lever at 1"R, 4" shaft
CA55-66	Carb, 1" SAE flange, 1-5/8" Air Horn, w/ 1/4" hole in lever at 1"R, 4" shaft
CA55-8	Carb, 1-1/4" SAE flange, 2-1/16" Air Horn

### CA55 SERIES 90° AIR HORN MIXERS

PART#	DESCRIPTION
CA55M-2	Mixer, 1-5/8" Air Horn HDTM
<u>CA55M-3</u>	Mixer, 1-3/4" Air Horn Black
CA55M-4	Mixer, 1-7/8" Air Horn HDTM
CA55M-5	Mixer Ass'y Model CA55M

### REPAIR KIT

P/N	DESCRIPTION
RK-CA55	Repair Kit, Mdl CA55
RK-CA55-2	Repair Kit, CA55 Carb Lean

### CA55 SERIES STRAIGHT DRAFT CARBURETORS

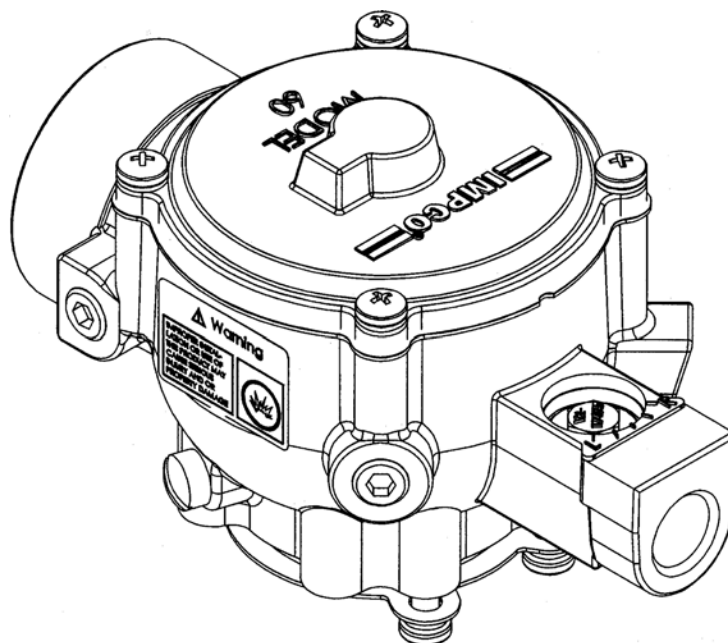
PART#	DESCRIPTION
<u>CA55-503</u>	Carb, 1-1/4" SAE flange, 2-1/4" Air Horn, with drilled shaft
CA55-508	Carb. 1-1/4 SAE 1-2/16 HDTM
<u>CA55-510</u>	Carb, 1-1/4" SAE flange, 2-5/16" Air Horn
<u>CA55-524</u>	Carb, 1" SAE flange, Toyota
CA55-542	Carb, 1" SAE flange, Toyota
CA55-553	Carb, 1" SAE flange, w/ A2-65 & A3-113 adapters, Toyota
<u>CA55-553-2</u>	Carb, 1" SAE flange, w/ A2-65 & A3-113 adapters, lean flow, Toyota
CA55-576	Carb, Hyster special flange, 43 mm Air Horn, short lever w/ throttle return
CA55-577	Carb, 53 mm flange, 43 mm Air Horn, standard flow
CA55-577-2	Carb, 53 mm flange, 43 mm Air Horn, lean flow
CA55-577-3	Carb, 53 mm flange, 43 mm Air Horn, lean flow
CA55-596^	Carb, 1-1/4" SAE flange, A2-61 Air Horn
<u>CA55-596-2</u>	Carb, 1-1/4" SAE flange, A2-61 Air Horn w/Tapped A/H 8 mm
<u>CA55-598-2</u>	Carb, W/A2-61-2 HTDM LPG
CA55-599-2	HTDM Carb, 1-1/4" SAE flange, 2-1/4" Air Horn, tapped 8 mm less levers
CA55-756L	Carb, 2-1/16" Air Horn, 2-1/16" hose, dual fuel, with lifter
<u>CA55-758L</u>	Mixer, 2-5/16" Air Horn, 2-5/16 hose, dual fuel, with lifter

### CA55 SERIES STRAIGHT DRAFT MIXERS

PART#	DESCRIPTION
CA55M-500-2	Series 500, straight draft mixer with lean air/gas valve ass'y.
CA55M-500-4	Series 500, straight draft mixer with lean body, lean full range
CA55M-500-9	Series 500, straight draft mixer with lean body, WOT
CA55M-750L	Series 500, straight draft mixer assembly with lifter, dual fuel

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model 60



### DESCRIPTION

The IMPCO Model 60 is an air-gas valve/diaphragm mixer designed to fit engines from 79 to 183 cubic inches (1.3 to 3.0 liters) in displacement and up to 95 CFM (44.8 L/s) airflow. It is a 90° air horn design available with a 2.06 inch (52.4mm) air horn and fits most current CA100 throttle bodies and adapters. It can also be used in-line, separate from the throttle body.

The mixer comes in two configurations: the CT version for open-loop engine applications without an electronic engine controller, and the FT version for use with the IMPCO Commander digital closed-loop fuel controller. Custom flow specifications for the mixer can be set and sealed at the factory.

Tamper resistant plugs are available for installation by your technicians after the IMPCO Model 60 mixer has been adjusted at your facility to fit your application.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas, Bi-Fueled with Gasoline
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Silicone
HP/kW Rating .....	Up to 73 hp (54.0 kW) @ 95 CFM (44.8 L/s) and 2.0" Hg manifold depression



Model 60

Carburetors & Mixers

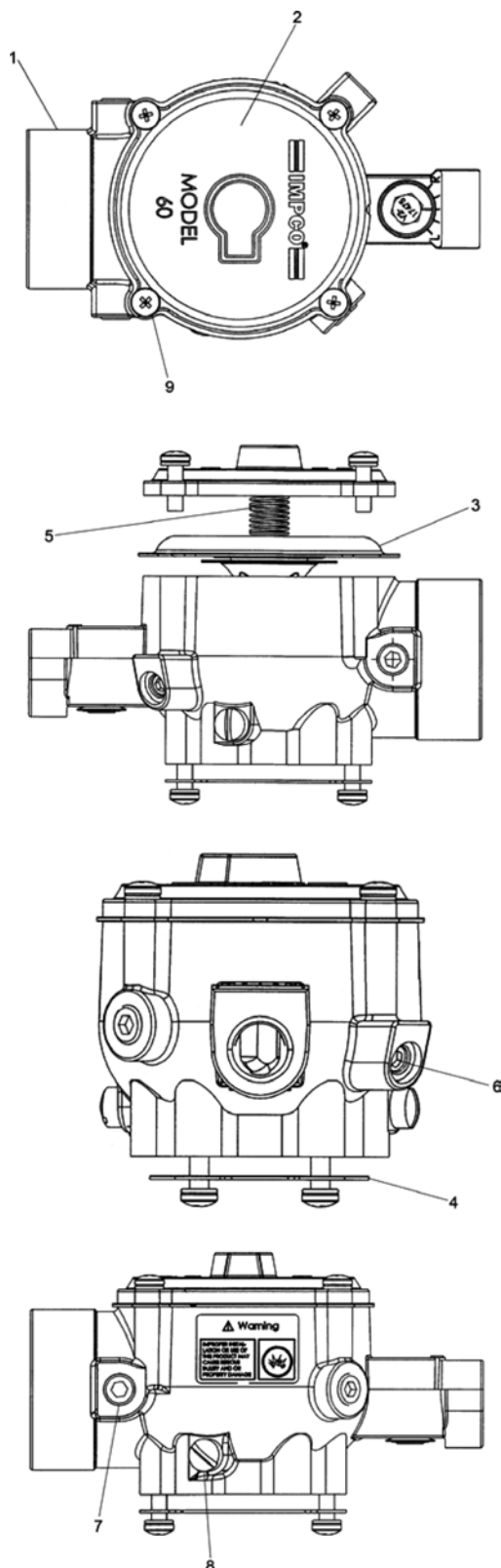


## DIMENSIONS & COMPONENTS

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model 60

### Carburetors & Mixers

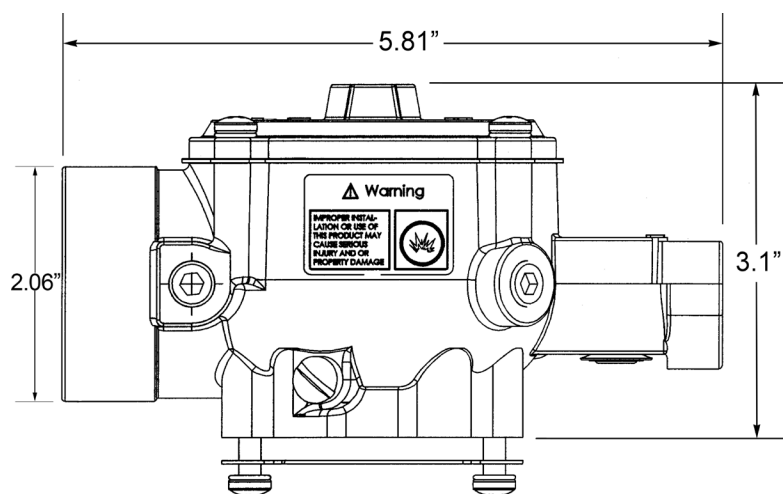


#### MODEL 60 MIXER PART NUMBERS

PART#	DESCRIPTION
<u>FT60M-3</u>	Feedback, 2.06" Air Horn
CT60M-3	Open-Loop, 2.06" Air Horn

ITEM #	PART #	DESCRIPTION
1	NSS	Body, 60 Series Mixer Assembly
2	NSS	Cover, 60 Series Mixer
3	AV1-25590	Air/Gas Valve Assembly
	AV1-30115	Air/Gas Valve Assembly
4	G1-11	Gasket, Throttle Body to Mixer
5	NSS	Spring, Secondary (Blue Stripe)
6	NSS	Screw, M8 x 1.25 Idle Adjust
7	NSS	Plug, Set Screw
8	NSS	Screw, 1/4\"-28 x 5/16"
9	NSS	Screw, M5 x .8 x 16mm Long

#### DIMENSIONS



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model 60

Carburetors & Mixers



## COMPONENTS

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# Model 60

## Carburetors & Mixers



### CARBURETOR

PART#	DESCRIPTION
<a href="#">CT60-30673</a>	2.06" Air Horn w/BT2-23-30682 Throttle Body for Hyster 2.0L Upgrade Kit

### THROTTLE BODIES

PART#	DESCRIPTION
<a href="#">AT2-1^</a>	3/4" SAE flange, 6.4mm (0.25) shaft dia.
<a href="#">AT2-2</a>	1" SAE flange, 6.4mm (0.25) shaft dia.
<a href="#">AT2-2-5</a>	1" SAE flange, 6.4mm (0.25") shaft dia., w/ vacuum advance
<a href="#">AT2-3</a>	1-1/4" SAE flange, 8.0mm (0.31") dia.
<a href="#">AT2-3-8</a>	1-1/4" SAE flange, 8.0mm (0.31") shaft dia. w/vacuum advance
<a href="#">AT2-4-1</a>	1-1/2" SAE flange, 8.0mm (0.31") shaft dia
<a href="#">AT2-4-3</a>	1-3/4" SAE flange, 8.0mm (0.31") shaft dia
<a href="#">AT2-4-6</a>	1-3/4" ASE flange, 8.0mm (0.31") shaft dia., w/needle bearings
<a href="#">AT2-16-1</a>	1-1/4" to 1-1/2" SAE flange, 8.0mm (0.31") shaft dia., no vacuum advance
<a href="#">AT2-16-4</a>	1-1/4" to 1-1/2" flange, 8.0mm (0.31") shaft dia., w/needle bearings & vacuum port
<a href="#">AT2-23</a>	1-1/4" SAE flange, 8.0mm (0.31") dia.
<a href="#">AT2-23-4</a>	1-1/4" SAE flange, 8.0mm (0.31") shaft dia.

Note: The above throttle bodies are offset.

### AIR/GAS VALVE ASSEMBLIES

PART#	DESCRIPTION
<a href="#">AV1-30115</a>	Air/Gas Valve Assy, Silicone FT Series
<a href="#">AV1-25590</a>	Air/Gas Valve Assy, Silicone CT Series

### ADAPTERS

Part#	DESCRIPTION
<a href="#">AA3-29-1</a>	Adapt. 100M to 2-1/16" hose
<a href="#">AA3-29-2</a>	Adapt. 100M to 2-1/16" hose, 12-24 Thrll Bodies
<a href="#">AA3-32-1</a>	Adapt. 100M to IMPCO 2B throttle body
<a href="#">AA3-49</a>	Adapt. 100M to Datsun C5-P5 Nikki throttle body
<a href="#">AA3-50</a>	Adapt. 100M to Datsun C3-P3 throttle body
<a href="#">A3-67</a>	Adapt. 100M to Mitsubishi lift truck throttle body

### GASKETS

Part#	DESCRIPTION
<a href="#">416</a>	Gasket, Flange 1-1/4" SAE TB60

### BEARINGS

PART#	DESCRIPTION
<a href="#">1-5022</a>	Bearing, Throttle Shaft
<a href="#">1-5019</a>	Beaming, Throttle Shaft 1/4"

### RETURN SPRING ASSEMBLIES

Part#	DESCRIPTION
<a href="#">AS2-50-1</a>	Throttle return, 6.4mm (0.25") shaft
<a href="#">AS2-50-2</a>	Throttle return, 8.0mm (0.31") shaft

### BRACKET ASSEMBLIES

Part#	DESCRIPTION
<a href="#">AB4-2</a>	Bracket, Boden Wire
<a href="#">AB4-19</a>	Bracket, AS2-50-2 Throttle Return Spring

### FUEL CONTROLLERS

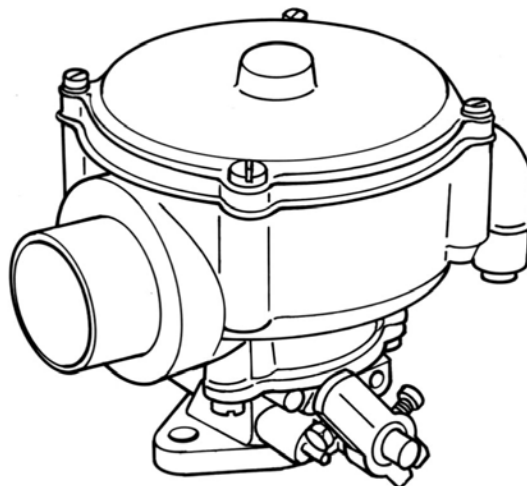
Part#	DESCRIPTION
<a href="#">EK-CDP-1</a>	Commander Kit

### LEVERS

Part#	DESCRIPTION
<a href="#">AL1-7-1</a>	Assy, 44.5mm (1.75") long (std. on AT2-3, AT2-4-1, AT2-4-3, AT2-16-1)
<a href="#">AL1-7-2</a>	Assy, w/ 6.4mm (0.25") ball stud, 44.5mm (1.75") long
<a href="#">AL1-7-3</a>	Assy, 33.3mm (1.31") long (std on AT2-1, AT2-2, AT2-2, AT2-23)
<a href="#">AL1-7-4</a>	Assy, w/swivel, 44.5mm (1.75") long
<a href="#">AL1-7-5^</a>	Assy, w/Wisconsin swivel, 6.4mm (0.25") mounting ID, 20.6mm (0.81") long
<a href="#">AL1-8-1</a>	Stop assy, 6.4mm (0.25") mounting ID, 19.1mm (0.75") long (std. on AT2-1, AT2-2)
<a href="#">AL1-8-2</a>	Stop assy, 8.0mm (0.31") mounting ID 19.1mm (0.75") long (std. on AT2-3, AT2-4-1, AT2-4-3, AT2-16-1, AT2-23).
<a href="#">AL1-25-1</a>	Assy, spring loaded, flating, 6.4mm (0.25") mounting ID, 34.9mm (1.38" long w/ AC2-14-1)
<a href="#">AL1-25-2^</a>	Assy, spring loaded, flating, 6.4mm (0.31") mounting ID, 34.9mm (1.38" long w/ AC2-14-2)
<a href="#">AL1-26-1</a>	Assy, flating 6.4mm (0.25") mounting ID, 54.0mm (2.13") long, w/AC2-11
<a href="#">AL1-26-2</a>	Assy floating, w/swivel, 6.4mm (0.25") mounting ID 54.0mm (2.12") long, w/ AC2-11
<a href="#">AL1-27-1</a>	Assy floating 8.0mm (0.31" mounting ID, 54.0mm (2.13") long w/AC2-12
<a href="#">AL1-31</a>	Assy, shaft clamp, 6.4mm (0.25") mounting ID 49.2mm (1.94") long
<a href="#">AL1-33</a>	Assy shaft clamp, 8.0mm (0.31") mounting ID 49.2mm (1.94") long
<a href="#">AL1-46</a>	Assy steel shaft clamp, 8.0mm (0.31") mounting ID, 47.6mm (1.88") long

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model CA100



### DESCRIPTION

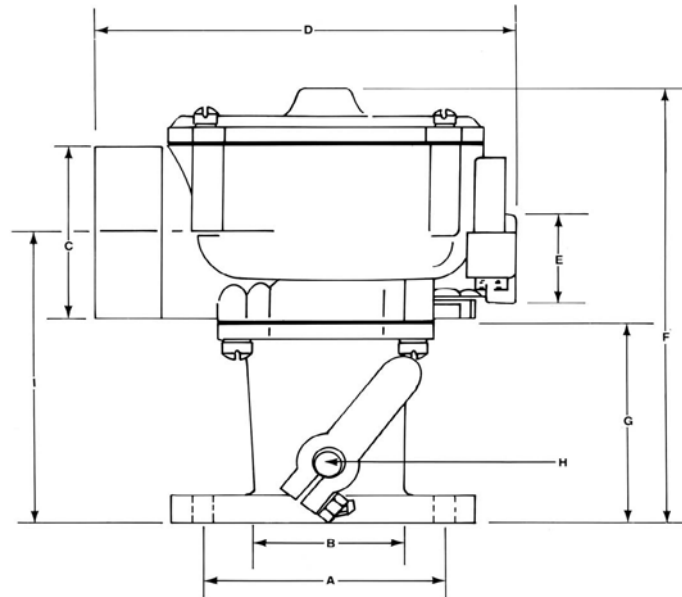
The Model 100 is a single diaphragm air-gas valve carburetor/mixer. It offers a 90-degree air inlet to provide low overhead clearance, and is available with several Air Horn and throttle body options. This unit is available for LPG Vapor and Natural Gas applications with airflow requirements up to 197 CFM (93 L/s). The Model 100 is also available for feedback applications with the 'FB' designation.

The 100 mixer provides a convenient 1/8 NPT balance port and two separate air valve vacuum ports. Additional low speed, idle mixture control can be obtained to lean air/fuel mixtures through the use of optional shims.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	106 HP (79.0 kW) @ 170 CFM (80 L/s) and 1.5" Hg manifold depression
	123 HP (91.7 kW) @ 197 CFM (93 L/s) and 2.0" Hg manifold depression

### DIMENSIONS



STD.CARB	MIXER	THROTTLE BODY	SAE FLANGE	CTR. TO CTR. BOLT SPACING	BORE	MIXER AIR HORN DIA.	OVERALL L WIDTH	NPT INLET	OVERALL HEIGHT	THROTTLE BODY HEIGHT	THROTTLE SHAFT DIA.	FLANGE TO CTR. OF AIR HORN
<u>CA100-6</u>	CA100M-2	AT2-2	1"	60.3mm (2.375")	30.2mm (1.188")	47.6mm (1.875")	133 mm (5.25")	1/2"	117mm (4.625")	34.9 mm (1.375")	6.4mm (0.250")	67.0mm (2.625")
CA100-8	CA100M-3	AT2-3	1-1/4"	68.3 mm (2.688")	36.5 mm (1.438")	52.4 mm (2.063")	133 mm (5.25")	1/2"	149 mm (5.875")	69.1 mm (2.719")	8.0 mm (0.313")	67.0 mm (2.625")
CA100-10	CA100M-4	AT2-3	1-1/4"	68.3 mm (2.688")	36.5 mm (1.438")	58.8 mm (2.313")	133 mm (5.25")	1/2"	150 mm (5.92")	69.1 mm (2.719")	8.0 mm (0.313")	99.6 mm (3.92")
<u>CA100-12</u>	CA100M-4	<u>AT2-4-1</u>	1-1/2"	74.6 mm (2.938")	42.9 mm (1.688")	58.8 mm (2.313")	131 mm (5.156")	1/2"	154 mm (6.063")	71.4 mm (2.813")	8.0 mm (0.313")	99.6 mm (3.92")
CA100-35^	CA100M-4-2	<u>AT2-4-1</u>	1-1/2"	74.6 mm (2.938")	42.9 mm (1.688")	58.8 mm (2.313")	131 mm (5.156")	1/2"	150 mm (5.92")	69.1 mm (2.719")	8.0 mm (0.313")	99.6 mm (3.92")
CA100-46	CA100M-4	AT2-4-3	1-3/4"	84.1 mm (3.313")	42.9 mm (1.688")	58.8 mm (2.313")	133 mm (5.25")	1/2"	150 mm (5.92")	71.4 mm (2.813")	8.0 mm (0.313")	99.6 mm (3.92")
<u>CA100-64</u>	NSS	AT2-23	1-1/4"	68.3 mm (2.688")	36.5 mm (1.438")	52.4 mm (2.063")	131 mm (5.156")	1/2"	116 mm (4.58")	34.9 mm (1.375")	8.0 mm (0.313")	65.5mm (2.58")
CA100-64G	CA100M-3	N/A	-	80.1mm (3.155")	Custom	52.4 mm (2.063")	131 mm (5.156")	1/2"	111mm (4.37")	N/A	N/A	60.2mm (2.37")
<u>CA100-66</u>	CA100M-4	<u>AT2-4-1</u>	1-1/2"	74.6 mm (2.938")	42.9 mm (1.688")	58.8 mm (2.313")	131 mm (5.156")	1/2"	150 mm (5.92")	69.1 mm (2.719")	8.0 mm (0.313")	99.6 mm (3.92")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## DIMENSIONS (CONTINUED)

				A	B	C	D	E	F	G	H	I
STD. CARB	MIXER	THROTTLE BODY	SAE FLANGE	CTR. TO CTR. BOLT SPACING	BORE	MIXER AIR HORN DIA.	OVERALL WIDTH	NPT INLET	OVERALL HEIGHT	THROTTLE BODY HEIGHT	THROTTLE SHAFT DIA.	FLANGE TO CTR. OF AIR HORN
CA100-108	NSS	AT2-23-6	1.25"	68.3mm (2.688")	36.5mm (1.438")	52.4 mm (2.063")	131mm (5.156")	1/2"	116.3 mm (4.58")	34.9mm (1.375")	8.0mm (0.313")	67.06mm (2.64")
CA100-110	CA100M-3	NSS	1"	60.3mm (2.375")	30.0mm (1.188")	52.4mm (2.063")	131mm (5.156")	1/2"	117mm (4.625")	36.5mm (1.438")	6.4mm (0.250")	67.06mm (2.64")
CA100-112	CA100M-3	NSS	1.25"	68.3 mm (2.688")	37.6mm (1.438")	131 mm (5.156")	131mm (5.156")	1/2"	116.3mm (4.58")	34.9mm (1.375")	8.0mm (0.313")	65.53mm (2.58")
<u>CA100-124-2</u>	CA100M-4	BT2-2-3	1"	60.3mm (2.375")	30.0mm (1.188")	58.8mm (2.313")	131mm (5.156")	1/2"	117 mm (4.625")	36.5 mm (1.438")	6.4mm (0.250")	67.06mm (2.64")
CA100-134	CA100M-3	NSS	1"	60.3mm (2.375")	30.0mm (1.188")	131mm (5.156")	131mm (5.156")	1/2"	117 mm (4.625")	36.5 mm (1.438")	6.4mm (0.250")	67.06mm (2.64")
<u>CA100-136</u>	CA100M-3	BT2-23-10	1.25"	68.3mm (2.688")	36.5mm (1.438")	52.4mm (2.063")	131mm (5.156")	1/2"	116.3 mm (4.58")	34.9 mm (1.375")	8.0mm (0.313")	67.06mm (2.64")
CA100-138	CA100M-3	NSS	1"	60.3mm (2.375")	30.0mm (1.188")	30.0 mm (1.188")	131mm (5.156")	1/2"	117 mm (4.625")	36.5 mm (1.438")	6.4mm (0.250")	67.06mm (2.64")
CA100-139	CA100M-3	NSS	1"	60.3mm (2.375")	30.0mm (1.188")	52.4mm (2.063")	131mm (5.156")	1/2"	117 mm (4.625")	36.5 mm (1.438")	6.4mm (0.250")	67.06mm (2.64")
CA100-180	NSS	BT2-23-849	1.25"	68.3mm (2.688")	36.5mm (1.438")	52.4mm (2.063")	131mm (5.156")	1/2"	116.3mm (4.58")	36.5 mm (1.438")	6.4mm (0.250")	67.06mm (2.64")
<u>CA100-245</u>	NSS	NSS		71.6mm (2.82")	42.2mm (1.66")							
CA100-272	CA100M-3	AT2-23-6	1.25"	68.3 mm (2.688")	37.6mm (1.438")	52.4mm (2.063")	131mm (5.156")	1/2"	116.3mm (4.58")	34.9mm (1.375")	8.0mm (0.313")	65.53mm (2.58")
CA100-183	N/A	NSS		74.7mm (2.94")	31.0mm (1.22")	52.3mm (2.06")	100.3mm (3.95")	1/2"	134.6 mm (5.30")	41.1 mm (1.62")	8.0mm (0.313")	82.55mm (3.25")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

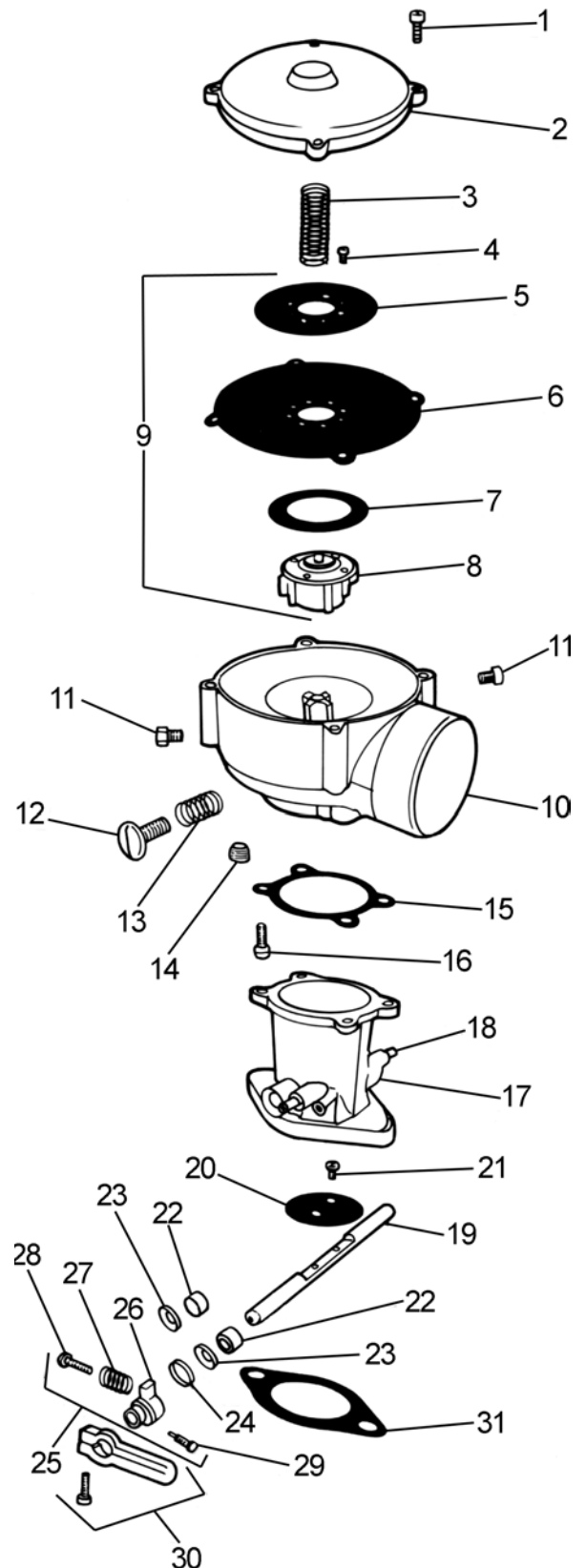
## COMPONENTS

ITEM#	PART#	DESCRIPTION
1	S1-3	Screw, 10-24 x 5/8" SEMS (4)
2	NSS	Cover
3	S2-85	Spring, air valve
4	S1-22	Screw, 5-32 X 1/4" SEMS (4)
5	P2-22	Plate, backup
6	D1-17	Diaphragm
	D1-17-2	Diaphragm, Silicone
7	R1-19	Ring, air valve
8	NSS	Air Valve
9	AV1-14	Air Gas Valve Assy, Complete
	AV1-14-2-962	Air Valve 30/35
10	NSS	Body, CA100M & 110M 2-5/6" AH
11	S1-69	Screw, 1/4-28 x 5/16" (2)
12	S1-74	Screw Idle
13	S2-88	Spring, Idle Screw
14	NSS	Plug, 1/8 NPT
15	G1-11	Gasket, Throttle Body to Mixer
16	S1-19	Screw, 12-24 x 5/8" SEMS (4)
17	NSS	Throttle Body
18	NSS	Pin, Throttle Stop (2)
19	NSS	Throttle shaft, 6.4 mm (0.25") dia.
	NSS	Fly, 19.1mm (0.75")
20	NSS	Fly, 25.4mm (1.00")
	NSS	Fly, 31.8mm (1.25")
	NSS	Fly, 38.1mm (1.50")
21	NSS	Screw, 6-32 x 1/4" SEMS (2)
	NSS	Bearing Oilite, 6.4mm (0.25") I.D. (2)
22	NSS	Bearing Oilite, 8.0mm (0.31") I.D. (2)
	NSS	Bearing Needle, 8.0mm (0.31) I.D. Opt.
	NSS	Seal, 6.4mm (0.25") shaft (2)
23	NSS	Seal, 8.0 mm (0.31") shaft (2)
	NSS	Seal, internal, 8.0 mm (0.31") I.D., Opt.
24	NSS	Ring, Seal Retainer
25	AL1-8-1	Throttle Stop ass'y, 6.4 mm (0.25") I.D.
	AL1-8-2	Throttle Stop ass'y, 8.0 mm (0.31") I.D.
26	NSS	Throttle Stop Lever, 6.4mm (0.25") I.D.
27	NSS	Stop screw, 10-32 x 3/4"
28	NSS	Spring, Idle Stop Screw
29	S1-18	Pin, Screw, Throttle Stop
30	NSS	Throttle Lever, Short w/Screw
	NSS	Throttle Lever, Long w/Screw
	G1-16	Gasket, 19.1 mm (0.75") Flange
	G1-17	Gasket, 25.4 mm (1.00") Flange
31	G1-18	Gasket, Flange 1-1/4" SAE
	NSS	Gasket, 31.8 mm (1.25") Flange



## Model CA100

### Carburetors & Mixers



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES &amp; ACCESSORIES

## CA100 CARBURETORS

PART#	DESCRIPTION
CA100-10	Carb, 1-1/4" SAE flange, 2-5/16" Air Horn, lean flow
CA100-108	Carb, 1-1/4" SAE flange (short), 2-1/16" Air Horn, lean flow, low profile
CA100-110	Carb, 1" SAE flange, 2-1/16" Air Horn, drilled shaft, AL1-26-401
CA100-112	Carb, 1-1/4" SAE flange, 2-1/16" Air Horn, lean flow, short shaft
<u>CA100-12</u>	Carb, 1-1/2" SAE flange, 2-5/16" Air Horn
<u>CA100-124-2</u>	Carb. 1" x 2-1/16" Air Horn AT2-2
CA100-134	Carb, 1" SAE flange, 2-1/16" Air Horn, lean flow
<u>CA100-136^</u>	Carb, 1-1/4" SAE flange, 2-1/16" Air Horn
CA100-138	Carb, 1" SAE flange, 1-1/16" Air Horn, Yale
CA100-139	Carb, 1" SAE flange, 2-1/16" Air Horn w/ bracket & swivel
CA100-180	Carb, 1-1/4" SAE flange, 2-1/16" Air Horn w/ L1-33, Clark
CA100-183	Carburetor Ass'y
CA100-194	Carb, AA3-67 adapter, 2-1/16" Air Horn, Clark
<u>CA100-270</u>	Carb Assy 1-1/4 X 2-1/16 Wis-Co
CA100-272	Carb, 1-1/4" SAE flange, 2-1/16" Air Horn, 100% flow, low Caterpillar
<u>CA100-35</u>	Carb, 1-1/2" SAE flange, 2-5/16" Air Horn, AL1-7-1 lever, silicone dia.
CA100-46	Carb, 1-3/4" SAE flange, 2-5/16" Air Horn
CA100-498	Carb. Ass'y NAACO (1389498)
<u>CA100-6</u>	Carb. 1" x 1 7/8"
<u>CA100-64</u>	Carb, 1-1/4" SAE flange (short), 2-1/16" Air Horn
CA100-64G	Carb, 2-1/6" Air Horn, 70/75 flow, no throttle ass'y.
<u>CA100-66</u>	Carb, 1-1/2" SAE flange, 2-5/16" Air Horn, 72/80 flow 1-1/4" SAE flange, 2-5/16" Air Horn, 72/80 flow, low profile
<u>CA100-7108</u>	Carburetor Ass'y (2817108)
CA100-8	1-1/4" SAE flange, 2-1/16" Air Horn
<u>CA100-91A</u>	Carburetor Ass'y

## MIXERS

PART#	DESCRIPTION
CA100M-1	38.1mm (1.50") Air Horn
CA100M-2	47.6mm (1.88") Air Horn
CA100M-2-2	47.6mm (1.88") Air Horn Silicone
CA100M-3	52.4mm (2.06") Air Horn
CA100M-3-2	52.4mm (2.06") Air Horn Silicone
CA100M-3-9	Mixer Assembly
CA100M-4	58.7mm (2.31") Air Horn
CA100M-4-2	58.7mm (2.31") Air Horn Silicone
CA100M-4-9	58.7mm (2.31") Air Horn Special
CA100M-5	41.3mm (1.63") Air Horn
FB100M-4	58.7mm (2.31") Air Horn for Feedback
CA100M-636	Mixer Ass'y Clark (2802636)

## THROTTLE BODIES (STANDARD)

PART#	DESCRIPTION
AT2-2	1" SAE flange, 6.4mm (0.25") Shaft dia.
<u>AT2-2-5</u>	1" SAE flange, 6.4mm (0.25") Shaft dia. w/vacuum advance
AT2-2-6	Throttle Assy 1" Long Shaft
AT2-3	1-1/4" SAE flange, 8.0mm (0.31") dia.
<u>AT2-3-8</u>	1-1/4" SAE Flange, 8.0mm (0.31") dia. Shaft w/vacuum advance
<u>AT2-4-1</u>	1-1/2" SAE flange, 8.0mm (0.31") Shaft dia.
AT2-4-3	1-3/4" SAE flange, 8.0mm (0.31") Shaft dia.
AT2-16-1	1-1/4" to 1-1/2" SAE flange, 8.0mm (0.31") Shaft dia., no vacuum advance
<u>AT2-16-2</u>	1-1/4" to 1-1/4" SAE flange, 8.0mm w/S5
<u>AT2-16-4</u>	1-1/4" to 1-1/2" SAE flange, 8.0mm (0.31") Shaft dia. w/needle bearings
AT2-23	1-1/4" SAE flange, 8.0mm (0.31") Shaft dia.
AT2-23-4	1-1/4" SAE flange, 8.0mm (0.31") dia.
<u>AT2-23-5</u>	Throttle Body 1 - 1/4 w/S5-11
AT2-23-6	Throttle Body 1 - 1/4 w/T1-17
<u>AT2-23-7</u>	T/B w/AT2-23 Tapped (LP Gas)

## AIR GAS VALVES

PART#	DESCRIPTION
AV1-14	Standard, w/Hydrin Diaphragm, LPG

## ASSEMBLIES &amp; ACCESSORIES (CONTINUED)

## CLAMP

PART #	DESCRIPTION
<a href="#"><u>AC2-29</u></a>	Clamp Ass'y, CA 125-76

## GOVERNOR

PART #	DESCRIPTION
AD1-85	Diaphragm Assy, Throttle Governor

## RING SPACER SPACERS ( OPTIONAL)

PART #	DESCRIPTION
<a href="#"><u>R1-29</u></a>	Ring, air valve spacer, AV1-14 (to lean idle mixtures)

## THROTTLE SHAFTS

PART #	DESCRIPTION
S5-1	6.4mm (0.25") dia. 114mm (4.50") long (stud on AT2-1, AT2-2)
S5-2	8.0mm (0.31") dia. 127mm (5.00") long (std on AT2-3, AT2-4-1, AT2-4-3, AT2-16-1, AT2-23)
S5-6	6.4mm (0.25") dia., 121mm (4.75") long
S5-7	8.0mm (0.31") dia., 133mm (5.25") long
S5-11	8.0mm (0.31") dia., 133mm (6.13") long

## ADAPTERS

PART #	DESCRIPTION
<a href="#"><u>AA3-29-1</u></a>	100M to 2-1/16" hose
<a href="#"><u>A3-29-2</u></a>	100M to 2-1/16" hose, tapped 12-24
<a href="#"><u>A3-31</u></a>	100M to 2-1/4" hose
AA3-32-1	100M to IMPCO 2B throttle body
<a href="#"><u>A3-31</u></a>	100M to 2-1/4" hose
AA3-32-1	100M to IMPCO 2B throttle body
<a href="#"><u>AA3-49</u></a>	100M to Datsun C5-P5 Nikki throttle body
<a href="#"><u>AA3-50</u></a>	100M to Datsun C3-P3 throttle body
<a href="#"><u>A3-94</u></a>	Datsun 4-bolt to 1" SAE flange
AS3-10	Ass'y, 12.7 mm (0.50"), to turn Air Horn 90° A110-DP Model 110 Mixer (also repair kit)

## LEVERS

PART #	DESCRIPTION
AL1-7-1	Ass'y 44.5mm (1.75") long (std. on AT2-3, AT2-4-1, AT2-4-3, AT2-16-1)
<a href="#"><u>AL1-7-2</u></a>	Ass'y w / 6.4mm (0.25") ball stud, 44.5mm (1.75") long
AL1-7-3	Ass'y, 33.3mm (1.31") long (std. on AT2-1, AT-2, AT2-23)
AL1-7-4	Ass'y, w / swivel, 44.5mm (1.75") long
<a href="#"><u>AL1-7-5</u></a>	Ass'y, w / Wisconsin swivel, 6.4mm (0.25") mounting I.D., 20.6mm (0.81") long
AL1-8-2	Stop ass'y, 8.0mm (0.31") mounting I.D., 19.1mm (0.75") long

## LEVERS (CONTINUED)

PART#	DESCRIPTION
<a href="#"><u>AL1-25-1</u></a>	Ass'y, spring loaded, floating, 6.4mm (0.25") mounting I.D., 34.9mm (1.38") long w / AC2-14-1
<a href="#"><u>AL1-25-2</u></a>	Ass'y, spring loaded, floating, 6.4mm (0.25") mounting I.D., 34.9mm (1.38") long w / AC2-14-2
AL1-26-1	Ass'y, floating 6.4mm (0.25") mounting I.D., 54.0mm (2.13") long, w / AC2-11
<a href="#"><u>AL1-26-2</u></a>	Ass'y, floating, w / swivel 6.4mm (0.25") mounting I.D., 54.0mm (2.13") long, w / AC2-11
AL1-27-1	Ass'y, spring loaded, floating, 8.0mm (0.31") mounting 54.0mm (2.13") long, w / AC2-12
AL1-31	Ass'y Shaft clamp, 6.4mm (0.25") mounting I.D., 49.2mm (1.94") long
AL1-33	Ass'y Shaft clamp, 8.0mm (0.31") mounting I.D., 49.2mm (1.94") long
<a href="#"><u>AL1-46</u></a>	Ass'y Shaft clamp, 8.0mm (0.31") mounting I.D. 47.6mm (1.88") long

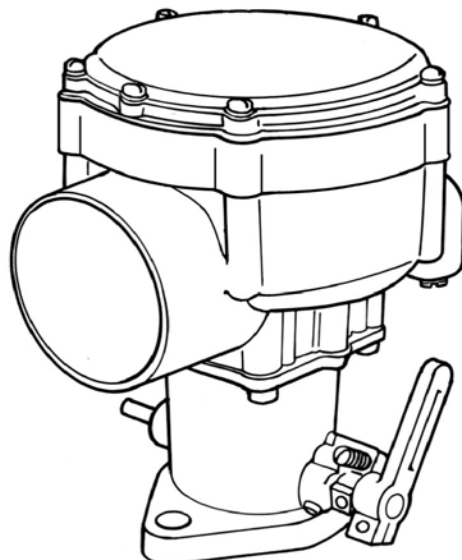
## RETURN SPRINGS

PART#	DESCRIPTION
AS2-50-1	Throttle return, 6.4mm (0.25") Shaft
AS2-50-2	Throttle return, 8.0mm (0.31") Shaft

## BRACKET ASSEMBLIES (OPTIONAL)

PART#	DESCRIPTION
AB4-2	Boden Wire
<a href="#"><u>AB4-19</u></a>	AS2-50-2 Throttle Return Spring

## Model CA110 (obsolete)



### DESCRIPTION

The Model 110 carburetor/mixer is designed primarily for one and two cylinder engines where severe intake manifold pressure pulsations are present. However, its use is not limited to these applications. Improved mixture control and air-gas valve durability can also benefit other applications in intake systems where pressure pulsations could adversely affect a standard 100/125 model assembly.

The Model 110 can be used with LPG Vapor or Natural Gas in applications requiring up to 170 CFM (80.2 L/s). All mixers and complete carburetors use a standard air-gas metering valve that provides adequate fuel mixture range with the appropriate positive (Natural Gas) or negative (LPG Vapor) vaporizer/ regulator. It is possible to use other air-gas metering valves and body assemblies from the 100/125 model and may have to be ordered as a separate component part.

### SPECIFICATIONS

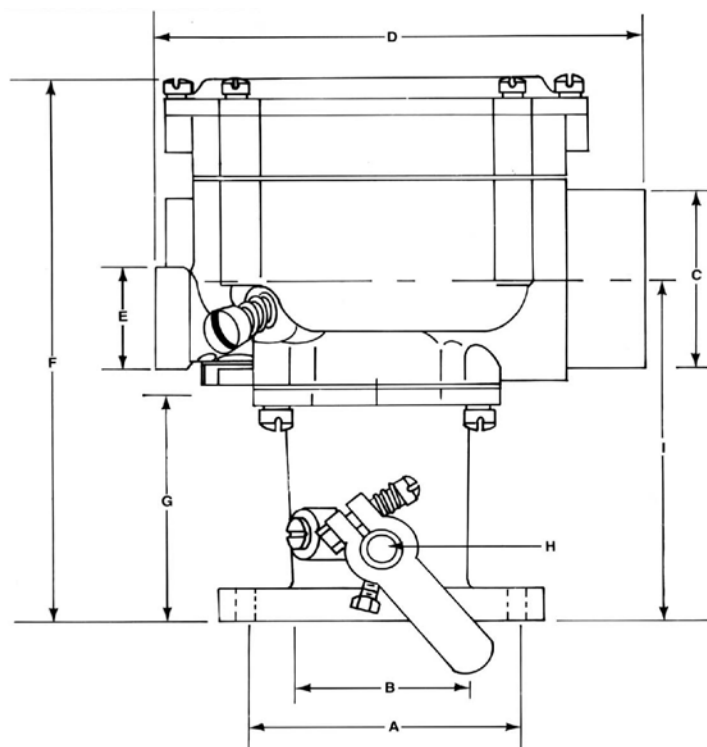
Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	106 HP (79.0 kW) @ 170 CFM (80.2 L/s) and 2.0" Hg manifold depression

# Model CA110 (obsolete)

## Carburetors & Mixers



### DIMENSIONS



				A	B	C	D	E	F	G	H	I
STD. CARB.	MIXER	THROTTLE BODY	SAE FLANGE	CTR. TO CTR. BOLT SPACING	BORE	MIXER AIR HORN DIA	OVERALL WIDTH	NPT INLET FITTING	OVERALL HEGITH	THROTTLE BODY HEIGHT	THROTTLE SHAFT DIA.	FLANGE TO CTR. OF AIR HORN
<a href="#">110-12^</a>	<a href="#">110M-4^</a>	<a href="#">AT2-4-1^</a>	1-1/2"	74.6mm (2.938")	42.9mm (1.688")	58.7mm (2.313")	131mm (5.156")	1/2"	159mm (6.281")	69.1mm (2.719")	7.9mm (0.313")	99.6mm (3.92")
<a href="#">110-66-2^</a>	<a href="#">110M-4^</a>	<a href="#">AT2-4-1^</a>	1-1/2"	74.6mm (2.938")	42.9mm (1.688")	58.7mm (2.313")	131mm (5.156")	1/2"	159mm (6.281")	69.1mm (2.719")	7.9mm (0.313")	99.6mm (3.92")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model CA110 (obsolete)

Carburetors & Mixers



## COMPONENTS

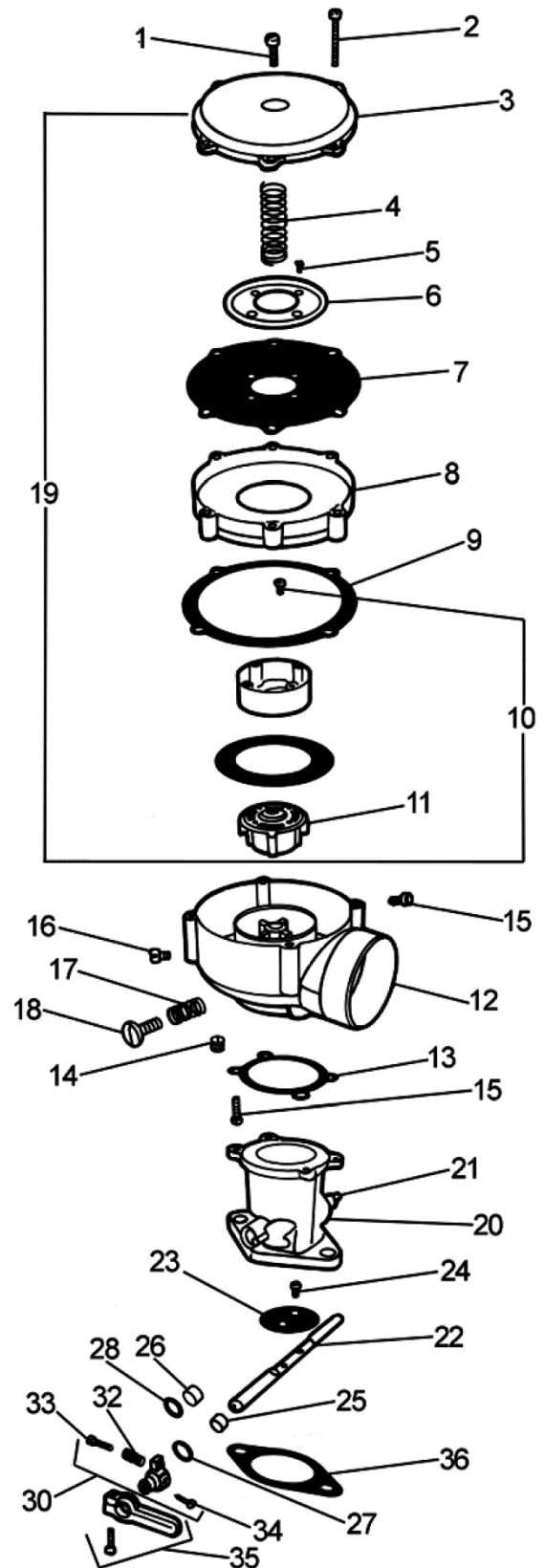
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model CA110 (obsolete)

### Carburetors & Mixers



ITEM#	PART#	DESCRIPTION
1	NSS	Screw, 10-24 x 5/8" SEMS (2)
2	NSS	Screw, 10-24 x 1-3/8" SEMS (4)
3	NSS	Cover
4	S2-13	Spring, air valve
5	S1-12	Screw, 8-32 x 5/16" SEMS (4)
6	NSS	Plate, backup
7	D1-13	Diaphragm
	D1-13-2	Diaphragm, silicone
8	NSS	Plate, divide
9	G1-13	Gasket, plate to body
10	NSS	Spacer Assy
	NSS	Spacer Only
11	BV1-14	Air gas valve Assy, complete
12	NSS	1-8-4 Body Assy
13	G1-11	Gasket, throttle body to mixer
14	NSS	Plug, 1/8 NPT
15	S1-19	Screw, 12-24 x 5/8" SEMS (4)
16	NSS	Screw, 1/4 -28 x 5/16" (2)
17	NSS	Spring, idle scre
18	NSS	Screw, idle
19	NSS	Dashpot Assy
	A110-DP-2	Dashpot Assy, Silicone
20	NSS	Throat, 3/4" SAE flange
21	NSS	Pin, throttle stop (2)
22	NSS	Throttle shaft, 6.4 mm (0.25") dia.
	S5-2	Throttle shaft, 8.0 mm (0.31") dia.
	NSS	Fly, 19.1 mm (0.75")
23	NSS	Fly, 25.4mm (1.00")
	NSS	Fly, 38.1 mm (1.50")
	NSS	Fly, 44.5 mm (1.75")
24	S1-22	Screw, 6-32 x 1/4" SEMS (2)
	S1-12	Screw, 8-32 x 5/16" SEMS (2)
25	NSS	Bearing Oilite, 6.4 mm (0.25") ID.
26	NSS	Bearing needle, 6.4 mm (0.25")
27	NSS	Seal, 6.4 mm (0.25") shaft (2)
	NSS	Seal, 8.0 mm (0.31") shaft (2)
28	NSS	Seal, internal, 8.0mm (0.31") ID.,
29	NSS	Ring, seal retainer (2)
30	NSS	Throttle stop ass'y, 6.4mm (0.25") ID.
	AL1-8-2	Throttle stop ass'y, 8.0mm (0.31") ID.
31	NSS	Throttle stop lever
32	NSS	Spring, idle stop screw
33	NSS	Stop screw, 6-32 x 1/4"
34	S1-18	Pin, screw, throttle stop
35	NSS	Throttle lever, short w/screw
	AL1-7-1	Throttle lever, long w/screw
36	NSS	Gasket, 19.1 mm (0.75") flange
	NSS	Gasket, 25.4mm (1.00") flange
	G1-18	Gasket, 31.8mm (1.25") flange
	G1-19	Gasket, 38.1 mm (1.50") flange
	G1-23	Gasket, 44.5mm (1.75") flange
	G1-56	Gasket, 31.8-38.1 mm (1.25-1.50") flange



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model CA110 (obsolete)

Carburetors & Mixers



## ASSEMBLIES & ACCESSORIES



# Model CA110 (obsolete)

## Carburetors & Mixers



### MIXERS, LP GAS (STANDARD)

PART#	DESCRIPTION
<u>110M-4^</u>	58.7 mm (2.31") Air Horn
110M-4-2	58.7 mm (2.31") Air Horn

### LEVERS

PART#	DESCRIPTION
AL1-7-1	Ass'y, 44.5 mm (1.75") long
<u>AL1-7-2^</u>	Ass'y, w/ 6.4 mm (0.25") ball stud, 44.5 mm (1.75") long
AL1-7-3	Ass'y, 33.3 mm (1.31") long (std. on AT2-1, AT2 2, AT2-23)
AL1-7-4	Ass'y, w/ swivel, 44.5 mm (1.75") long
<u>AL1-7-5^</u>	Ass'y, w/ Wisconsin swivel, 6.4 mm (0.25") mounting I.D., 20.6 mm (0.81") long
AL1-8-1	Stop ass'y, 6.4 mm (0.25") mounting I.D., cutdown, 19.1 mm (0.75") long (std. on AT2-1, AT2-2)
AL1-8-2	Stop ass'y, 8.0 mm (0.31") mounting I.D., 19.1 mm (0.75") long
<u>AL1-25-1^</u>	Ass'y, spring loaded, floating, 6.4 mm (0.25") mounting I.D., 34.9 mm (1.38") long, w/ AC2-14-1
<u>AL1-25-2^</u>	Ass'y, spring loaded, floating, 8.0 mm (0.31") mounting I.D., 34.9 mm (1.38") long, w/ AC2-14-2
AL1-26-1	Ass'y, floating, 6.4 mm (0.25") mounting I.D.,
<u>AL1-26-2^</u>	54.0 mm (2.13") long, w/ AC2-11
AL1-27-1	Ass'y, floating, w/ swivel, 6.4 mm (0.25") mounting I.D., 54.0 mm (2.13") long, w/ AC2-11
AL1-31	54.0 mm (2.13") long, w/ AC2-12
AL1-33	Ass'y, floating, w/ swivel, 8.0 mm (0.31") mounting I.D., 54.0 mm (2.13") long, w/ AC2-12
<u>AL1-46^</u>	Ass'y, shaft clamp, 6.4 mm (0.25") mounting I.D., 49.2 mm (1.94") long

NOTE: AL1-7-1 through AL1-7-4 levers used w/AL1-8 lever stop.

### THROTTLE SHAFTS

PART#	DESCRIPTION
S5-1	6.4 mm (0.25") dia., 114 mm (4.50") long
S5-2	8.0 mm (0.31") dia., 127 mm (5.00") long
S5-6	6.4 mm (0.25") dia., 121 mm (4.75") long
S5-7	8.0 mm (0.31") dia., 133 mm (5.25") long
S5-11	8.0 mm (0.31") dia., 156 mm (6.13") long

### THROTTLE BODIES (STANDARD)

PART#	DESCRIPTION
<u>AT2-1^</u>	1" SAE flange, 6.4 mm (0.25") shaft dia.
AT2-2	1" SAE flange, 6.4 mm (0.25") shaft dia., w/ vacuum advance
<u>AT2-2-5^</u>	1-1/4" SAE flange, 8.0 mm (0.31") dia.
<u>AT2-3^</u>	1-1/4" SAE flange, 8.0 mm (0.31") dia., w/ vacuum advance
<u>AT2-3-8^</u>	1-1/2" SAE flange, 8.0 mm (0.31") shaft dia.
<u>AT2-4-1^</u>	1-3/4" SAE flange, 8.0 mm (0.31") shaft dia.
AT2-4-3	1-3/4" SAE flange, 8.0 mm (0.31") shaft dia., w/ needle bearings
AT2-16-1	1-1/4" to 1-1/2" flange, 8.0 mm (0.31") shaft dia., w/ needle bearings & internal seal
<u>AT2-16-3^</u>	1-1/4" to 1-1/2" SAE flange, 8.0 mm (0.31") shaft dia., w/ needle bearings
<u>AT2-16-4^</u>	1-1/4" SAE flange, 8.0 mm (0.31") shaft dia.
AT2-23	1-1/4" to 1-1/2" SAE flange, 8.0 mm (0.31") shaft dia., w/ needle bearings & internal seal
AT2-23-4	1-1/4" SAE flange, 8.0 mm (0.31") shaft dia., w/ vacuum advance

### RETURN SPRING ASSEMBLIES

PART#	DESCRIPTION
AS2-50-1	Throttle return, 6.4 mm (0.25") shaft AB4-2 Boden wire AS2-50-2 Throttle return, 8.0 mm (0.31") shaft

### SPACERS (OPTIONAL)

PART#	DESCRIPTION
AS3-10	Ass'y, 12.7 mm (0.50"), to turn Air Horn 90° A110-DP Model 110 Mixer (also repair kit)
AS3-22	16.7 mm (0.66"), air valve A110-DP-2 Model 110 Mixer, w/ silicone diaphragm (also repair kit)
<u>AS3-43^</u>	Ass'y, 4.8 mm (0.19"), to turn Air Horn 90°

### CARBURETORS/MIXERS

PART#	DESCRIPTION
<u>110-12^</u>	Carb, 1-1/2" SAE flange, 2-5/16" Air Horn, Oilite bearings w/ Silicone
<u>110-12-2^</u>	Carb, 1-1/4 x 2-5/16 w/ AS2-50-2
<u>110-66-2^</u>	Carb, 2-5/16" Air Horn, silicone diaphragm
110M-4-2	Mixer, with Silicone

### BRACKET ASSEMBLIES (OPTIONAL)

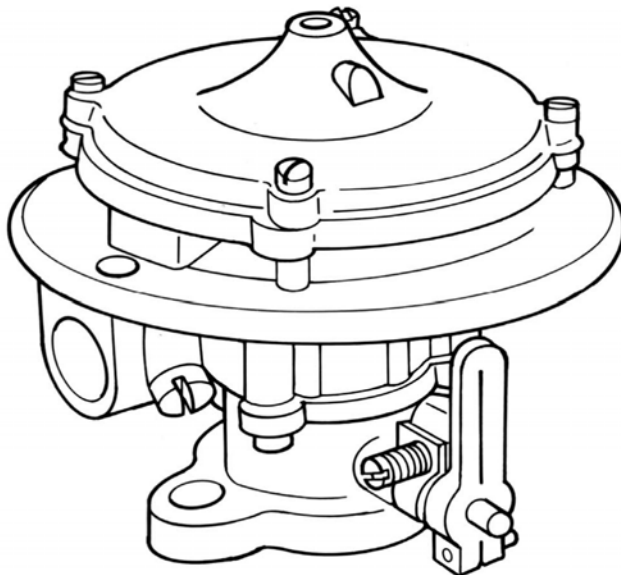
PART#	DESCRIPTION
AB4-2	Boden Wire

### DASHPOT ASSEMBLIES (STANDARD)

PART#	DESCRIPTION
<u>A110-DP^</u>	Dashpot Assy 110 Mixer
A110-DP-2	Dashpot Assy 110 Mixer, Silicone

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model CA125



### DESCRIPTION

The Model 125 carburetor is a single-diaphragm air valve carburetor/mixer for applications requiring airflow up to 235 CFM (111 L/s). It offers a down draft air inlet that can be used for remote air filtration or open-element type air filters. This unit is available for LPG Vapor and Natural Gas Vapor applications. The Model 125 is also available for feedback applications with the “FB” designation.

Two separate air valve vacuum supplies are available with this mixer. Additional low speed mixture control can be obtained to lean air/fuel mixtures with optional shims.

### SPECIFICATIONS

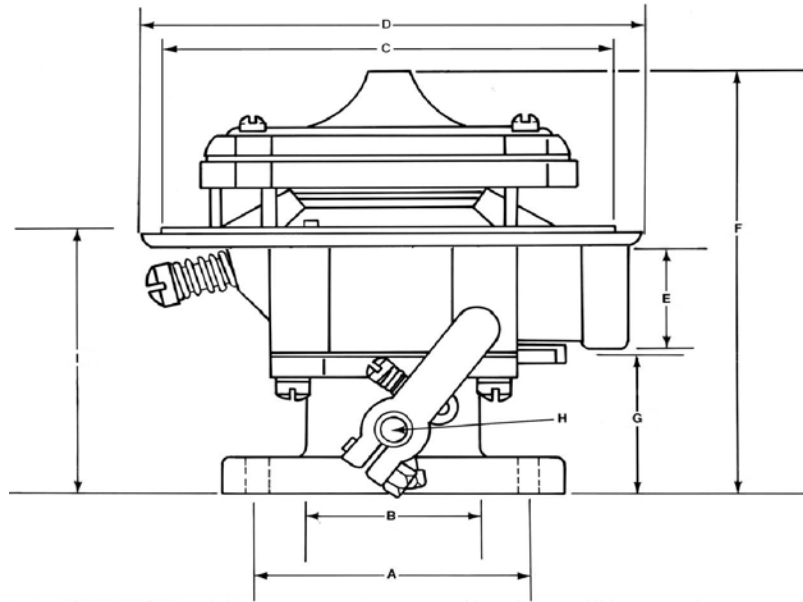
Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5” w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	126 HP (94.0 kW) @ 202 CFM (95 L/s) and 1.5” Hg manifold depression
	146 HP (108.8 kW) @ 235 CFM (111 L/s) and 2.0” Hg manifold depression

# Model CA125

## Carburetors & Mixers



### DIMENSIONS



				A	B	C	D	E	F	G
STD. CARB	MIXER	THRTL. BODY	SAE FLANGE	CTR. TO CTR. BOLT SPACING	BORE	MIXER AIR HORN DIA	OVRL. WIDTH	NPT INLET	OVERALL HEIGHT	THRTL. BODY HEIGHT
<u>CA125-6^</u>	CA125M	AT2-16-1	1.25" X 1.50"	71.4mm (2.813")	42.9mm (1.688")	130mm (5.125")	140mm (5.500")	1/2"	141mm (5.563")	41.3mm (1.625")
<u>CA125-8^</u>	CA125M	AT2-16-1	1.25" X 1.50"	71.4mm (2.813")	42.9mm (1.688")	130mm (5.125")	140mm (5.500")	1/2"	141mm (5.563")	41.3mm (1.625")
CA125-26	CA125M	AT2-16-1	1.25" X 1.50"	71.4mm (2.813")	42.9mm (1.688")	130mm (5.125")	140mm (5.500")	1/2"	141mm (5.563")	41.3mm (1.625")
<u>CA125-38^</u>	CA125M	<u>AT2-23-5^</u>	1.25"	68.3mm (2.688")	36.5mm (1.438")	130mm (5.125")	140mm (5.500")	1/2"	119mm (4.688")	34.9mm (1.375")
<u>CA125-44^</u>	CA125M	NSS	1.25"	68.3mm (2.688")	36.5mm (1.438")	130mm (5.125")	140mm (5.500")	1/2"	154.1mm (4.688")	69.1mm (2.719")
CA125-52	CA125M	AT2-16-1	1.25" X 1.50"	71.4mm (2.813")	42.9mm (1.688")	130mm (5.125")	140mm (5.500")	1/2"	141mm (5.563")	41.3mm (1.625")
<u>CA125-76-2^</u>	CA125M -2	AT2-23-6	1.25"	68.3mm (2.688")	36.5mm (1.438")	130mm (5.125")	140mm (5.500")	1/2"	119mm (4.688")	34.9mm (1.375")
<u>CA125-100-2^</u>	CA125M-2	<u>BT2-16-100^</u>	1.25" X 1.50"	71.4mm (2.813")	42.9mm (1.688")	130mm (5.125")	140mm (5.500")	1/2"	141mm (5.563")	41.3mm (1.625")
CA125-134	NSS	NSS	N/A	N/A	N/A	N/A	N/A	1/2"	N/A	N/A

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model CA125

Carburetors & Mixers



## COMPONENTS

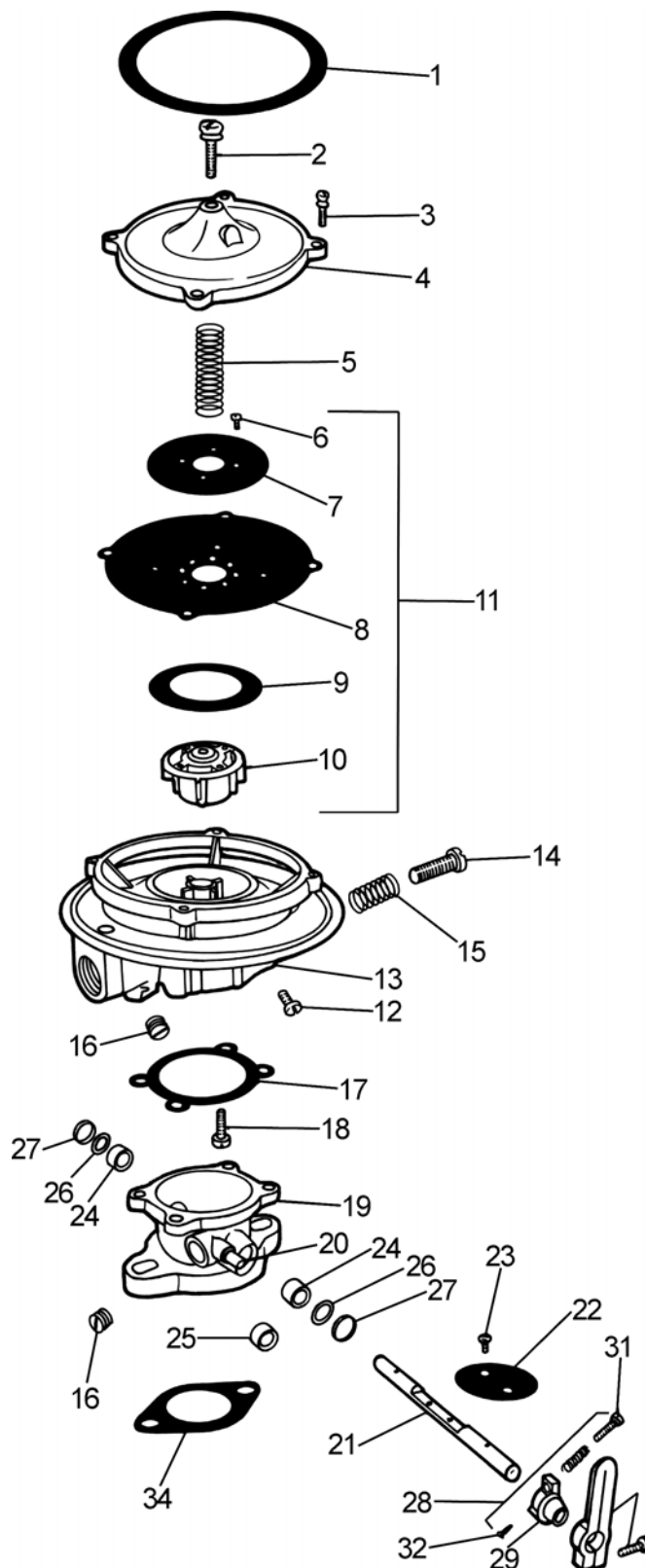
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# Model CA125

## Carburetors & Mixers



ITEM#	PART#	DESCRIPTION
1	G1-66	Gasket, mixer to Air Horn
2	NSS	Screw, 1/4-20 x 1" SEMS
3	S1-3	Screw, 10-24 x 5/8" SEMS (4)
4	NSS	Cover, air valve
5	S2-85	Spring, air valve
6	S1-22	Screw, 5-32 x 1/4" SEMS (4)
7	P2-22	Plate, backup
8	D1-17	Diaphragm
	D1-17-2	Diaphragm, silicone
9	R1-19	Ring, air valve
10	BV1-14	Air gas valve ass'y, complete
11	AV1-14	Std Valve & Diaphragm, LPG
	AV1-14-3	Std Valve & Diaphragm, Silicone LPG
12	NSS	Screw, 1/4-28 x 5/16" (3)
13	NSS	Body ass'y
14	NSS	Screw, idle
15	S2-16	Screw, idle screw
16	NSS	Plug, 1/8 NPT
17	NSS	Gasket, throttle body to mixer
18	S1-19	Screw, 12-24 x 5/8" SEMS (4)
19	NSS	(Refer to chart for correct AT2-assembly)
20	NSS	Pin, throttle stop (2)
	NSS	Throttle shaft, 6.4 mm (0.25") dia.
21	S5-2	Throttle shaft, 8.0 mm (0.31") dia.
	NSS	Fly, 19.1 mm (0.75")
22	NSS	Fly, 25.4 mm (1.00")
	NSS	Fly, 38.1 mm (1.50")
	NSS	Fly, 44.5 mm (1.75")
23	NSS	Screw, 6-32 x 1/4" SEMS (2)
	S1-12	Screw, 8-32 x 5/16" SEMS (2)
24	NSS	Bearing Oilite, 6.4 mm (0.25") I.D. (2)
25	NSS	Bearing needle, 6.4 mm (0.25") I.D.,
	NSS	Seal, 6.4 mm (0.25") shaft (2)
26	NSS	Seal, 8.0 mm (0.31") shaft (2)
	S3-25	Seal, internal, 8.0 mm (0.31") I.D., opt. (2)
27	R1-9	Ring, seal retainer (2)
28	NSS	Throttle stop ass'y 8.0 mm (0.31") I.D.
29	NSS	Throttle stop lever
30	NSS	Spring, idle stop screw
31	NSS	Stop screw, 10-32 x 3/4"
32	S1-18	Pin, screw, throttle stop
33	AL1-7-3	Throttle lever, short, w/screw
	AL1-7-1	Throttle lever, long, w/screw
	G1-16*	Gasket, 19.1 mm (0.75") flange
	G1-17*	Gasket, 1" flange
	NSS	Gasket, 25.4 mm (1.00") flange
	NSS	Gasket, 31.8 mm (1.25") flange
	NSS	Gasket, 38.1 mm (1.50") flange
34	G1-23	G1-23 Gasket, 44.5 mm (1.75") flange
	G1-56	G1-56 Gasket, 31.8 - 38.1 mm (1.25 - 1.50") flange



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model CA125

Carburetors & Mixers



## ASSEMBLIES & ACCESSORIES

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# Model CA125

## Carburetors & Mixers



### MIXERS, LP GAS (STANDARD)

PART#	DESCRIPTION
CA125M	Mixer
CA125M-10	Mixer, complete vac. Lifter 100% Flow
<u>CA125M-10-2^</u>	Mixer, complete vac. Lifter 100% Flow, Silicone
CA125M-2	ASM Mixer w/ silicone diaphragm dia.
CA125M-292	Mixer, Ass'y for CA125-134
CA125M-3	Mixer, Lean

### THROTTLE SHAFTS

PART#	DESCRIPTION
S5-1	6.4mm (0.25") dia., 114mm (4.50") long
S5-2	8.0 mm (0.31") dia., 127 mm (5.00") long
S5-6	6.4 mm (0.25") dia., 121 mm (4.75") long
S5-7	8.0 mm (0.31") dia., 133 mm (5.25") long
S5-11	8.0 mm (0.31") dia., 156 mm (6.13") long

### RING SPACERS

PART#	DESCRIPTION
<u>R1-20^</u>	Donaldson, V, 58.7 mm (2.31") dia
<u>R1-29^</u>	Air valve spacer, AV1-14 (to lean idle mixtures)

### AIR CLEANER ASSEMBLIES

PART#	DESCRIPTION
<u>AF1-5^</u>	71 L/s (150 cfm), 172 mm (6.75") O.D., 60.3 mm (2.38") high
<u>F1-5^</u>	Filter, elem Air CA125 150cfm
<u>AF1-8^</u>	118 L/s (2.50 cfm), 234 mm (9.25") O.D., 76.2 mm (3.00") high
<u>AL1-8-2^</u>	118 L/s (2.50 cfm), 234 mm (9.25") O.D., 76.2 mm (3.00") high
<u>AF1-14^</u>	230 L/s (500 cfm), 226 mm (9.00") O.D., 191 mm (7.50") high
<u>C1-28^</u>	Cover, F1-5

### THROTTLE BODIES (STANDARD)

PART#	DESCRIPTION
<u>AT2-1^</u>	3/4" SAE flange, 6.4mm (0.25") Shaft dia.
AT2-2	1" SAE flange, 6.4 mm (0.25") shaft dia.
<u>AT2-2-5^</u>	1" SAE flange, 6.4 mm (0.25") shaft dia., w/vacuum advance
AT2-3	1-1/4" SAE flange, 8.0 mm (0.31") shaft dia.
<u>AT2-3-8^</u>	1-1/4" SAE flange, 8.0 mm (0.31") shaft dia., w/ vacuum advance
AT2-4-1	1-1/2" SAE flange, 8.0 mm (0.31") shaft dia.
AT2-4-3	1-3/4" SAE flange, 8.0 mm (0.31") shaft dia.
AT2-16-1	1-1/4" to 1/2" SAE flange, 8.0 mm (0.31") shaft dia., no vacuum port
<u>AT2-16-4^</u>	1-1/4" to 1/2" SAE flange, 8.0 mm (0.31") shaft w/needle bearings
AT2-23	1-1/4" SAE flange, 8.0 mm (0.31") shaft dia.
AT2-23-4	1-1/4" to 1/2" SAE flange, 8.0 mm (0.31") shaft dia., w/ needle bearings & internal seal
AT2-2-6	Throttle Ass'y, 1" Long Shaft

NOTES: \* AT2-16's have vacuum port.

\* The above throttle bodies are offset.

### SPACERS (OPTIONAL)

PART#	DESCRIPTION
AS3-10	Ass'y, 12.7 mm (0.50"), to turn Air horn 90°
<u>AS3-43^</u>	Ass'y, 4.8 mm (0.19"), to turn Air horn 90°

### BRACKET ASSEMBLIES (OPTIONAL)

PART#	DESCRIPTION
AB4-2	Throttle Cable/Boden Wire Bracket
<u>AB4-19^</u>	AS2-50-2 Throttle Return Springs

### RETURN SPRING ASSEMBLIES

PART#	DESCRIPTION
AS2-50-1	Throttle return, 6.4 mm (0.25") shaft
AS2-50-2	Throttle return, 8.0 mm (0.31") shaft

### LEVERS

PART#	DESCRIPTION
AL1-7-1	Ass'y, 44.5 mm (1.75") long
<u>AL1-7-2^</u>	Ass'y, w/ 6.4 mm (0.25") ball stud, 44.5 mm, long
AL1-7-3	Ass'y, 33.3 mm (1.31") long
<u>AL1-7-4^</u>	Ass'y, w/ swivel, 44.5 mm (1.75") long
<u>AL1-7-5^</u>	Ass'y, w/ viscoelastic swivel, 6.4 mm (0.25")
AL1-8-1	Stop ass'y, 0.4 mm (0.01") mounting I.D., 19.1 mm (0.75")
AL1-8-2	Stop ass'y, 0.8 mm (0.03") mounting I.D., 19.1 mm (0.75")
<u>AL1-25-1^</u>	Ass'y, spring loaded, mounting, 6.4 mm (0.25")
<u>AL1-25-2^</u>	Ass'y, spring loaded, mounting, 8.0 mm (0.31")
AL1-26-1	Ass'y, mounting, 6.4 mm (0.25") mounting I.D., 14.4 mm (0.57")
<u>AL1-26-2^</u>	Ass'y, mounting, w/ swivel, 6.4 mm (0.25")
AL1-27-1	Ass'y, mounting, 5.0 mm (0.20") mounting I.D., 11.4 mm (0.45")
AL1-31	Ass'y, shaft clamp, 6.4 mm (0.25") mounting I.D., 11.4 mm (0.45")
AL1-33	Ass'y, shaft clamp, 6.4 mm (0.25") mounting I.D., 11.4 mm (0.45")
<u>AL1-46^</u>	Ass'y, steel shaft clamp, 6.4 mm (0.25") mounting I.D., 47.6 mm (1.88") long

### CLAMP

PART#	DESCRIPTION
<u>AC2-29^</u>	Clamp Ass'y, CA125-76

### GOVERNOR

PART#	DESCRIPTION
AD1-85	Diaphragm, Asst. Throttle, governor
<u>AT2-60G-1^</u>	Governor, Hyster 2V
<u>AT2-77G^</u>	Governor, Assy
<u>AT2-200^</u>	Governor, Assy LPG

### ADAPTERS

PART#	DESCRIPTION
<u>A1-53^</u>	Adapter, 125 Series Carb
A2-7	Air Horn, 66.7 mm (2.63") dia.
A2-8	Air Horn, 58.7 mm (2.31") dia.
<u>A2-9^</u>	Air Horn, 56.4 mm (2.22") dia.
A2-33	Air Horn, 80 mm (3.16") dia.
<u>A2-34^</u>	Air Horn, 54 mm (2.13") dia.
<u>A3-28^</u>	200mm, CA22M to 77.8 mm (3.06") nose (use w/ A22-4)
<u>A3-29-1^</u>	Adapt. CA100M to CA125M to 2-1/16"
<u>A3-29-2^</u>	Adapt. CA100M/CA125M to 2-1/16"

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES & ACCESSORIES (CONTINUED)

### ADAPTERS (CONTINUED)

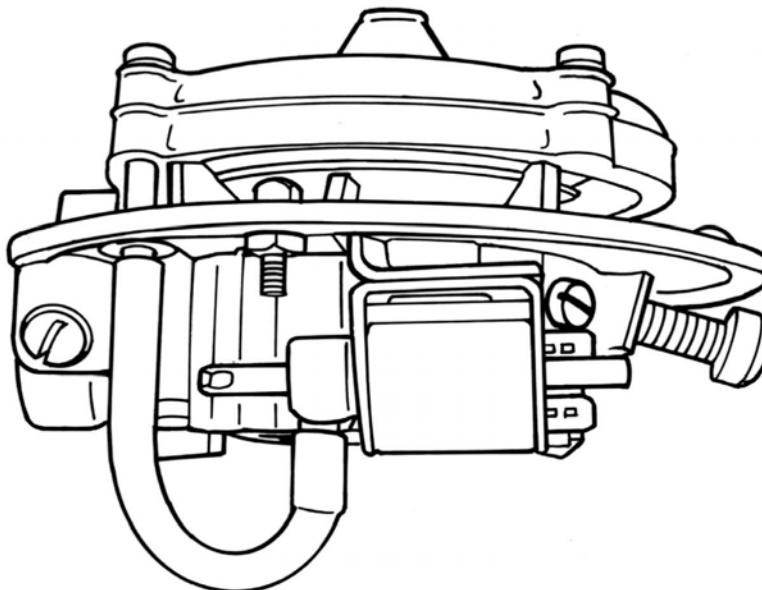
PART#	DESCRIPTION
<u>AA3-29-1^</u>	CA125M to 52.4 mm (2.06") hose
<u>AA3-29-2^</u>	CA125M to 52.4 mm (2.06") hose, tapped 12-24
<u>A3-31^</u>	CA125M to 57.2 mm (2.25") hose
AA3-32-1	CA125M to IMPCO 2B throttle body
<u>AA3-49^</u>	CA125M to Datsun C5-P5 Nikki throttle body
<u>AA3-50^</u>	CA125M to Datsun C3-P3 throttle body
<u>A3-94^</u>	Datsun 4 bolt to 1" SAE Flange

### AIR-GAS VALVE ASSEMBLIES

PART#	DESCRIPTION
AV1-14	Std, w/hydrin, diaphragm, LPG
AV1-14-2	Lean, w/hydrin, diaphragm, LPG
AV1-14-3	Std, w/silicone, diaphragm, LPG
AV1-14-4	Lean, w/silicone, diaphragm, LPG
<u>AV1-14-220-2^</u>	W/silicone, diaphragm, for non-feedback
AV1-1447-2	For std. feedback, w/silicone, diaphragm
CV1-14	Special lean, w/hydrin, diaphragm
CV1-14-2	Special lean, w/silicone, diaphragm
EV1-14	W/42 valve
EV1-14-2	W/42 valve & silicone diaphragm
EV1-14-4	Air Gas Valve Assembly
AV1-30692-001	Air Gas Valve Assembly



## Model CA125M-10



### DESCRIPTION

The Model 125M-10 is a vacuum lift mixer designed to reduce inlet restrictions in dual fuel installations with airflow requirements up to 235 CFM (111 L/s). In some applications, inlet restrictions cannot be tolerated with a conventional gasoline carburetor as they will cause it to run rich.

The 125M-10 provides an electrically-operated solenoid that directs manifold vacuum to the top diaphragm chamber when gasoline operation is desired. This provides full air valve lift, reducing air inlet restriction to a minimum. The 125M-10 is available with standard type air-gas metering valves and feedback control systems.

### SPECIFICATIONS

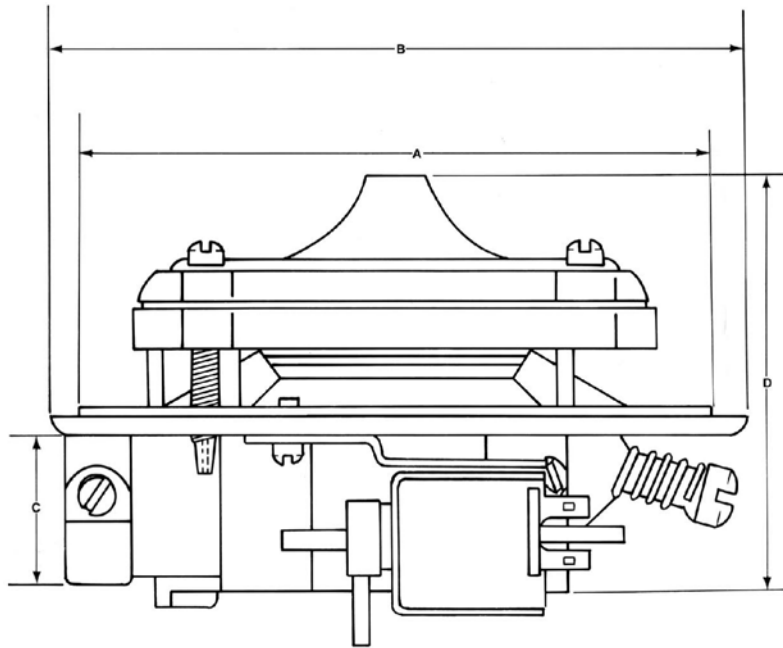
Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	146 hp (175.2 kW) @ 235 CFM (111 L/s) and 2.0" Hg manifold depression

## Model CA125M-10

### Carburetors & Mixers



#### DIMENSIONS



	A	B	C	D
MIXER	MIXER AIR HORN DIA.	OVERALL WIDTH	NPT INLET FITTING	OVERALL HEIGHT
CA125M-10	130MM (5.13")	140MM (5.50")	1/2"	100MM (3.94")
<u>CA125M-10-2^</u>	130MM (5.13")	140MM (5.50")	1/2"	100MM (3.94")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model CA125M-10

Carburetors & Mixers



## COMPONENTS

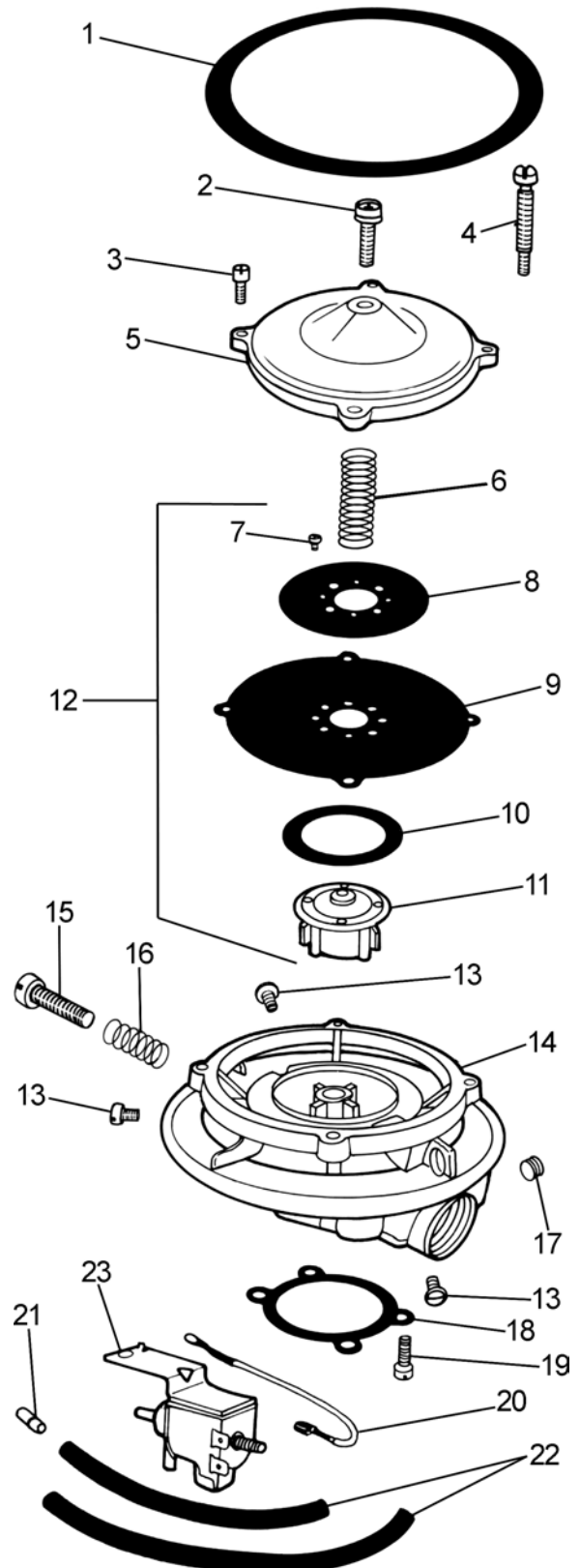
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# Model CA125M-10

## Carburetors & Mixers



ITEM#	PART#	DESCRIPTION
1	G1-66	Gasket, Mixer to Air Horn
2	NSS	Screw, 1/4-20 x 1" SEMS
3	S1-3	Screw, 10-24 x 5/8" SEMS (4)
4	NSS	Screw, 1/4 x 1-3/4" fillister head,
5	NSS	Cover, Air Valve
6	S2-85	Spring, air valve
7	S1-22	Screw, 5-32 x 1/4" SEMS (4)
8	P2-22	Plate, backup
9	D1-17	Diaphragm
	D1-17-2	Diaphragm, Silicone
10	R1-19	Ring, air valve
11	BV1-14	Air Gas Valve Assy, Complete
12	NSS	Valve & diaphragm Assy, Complete
	EV1-14-5	Valve & diaphragm Assy, Silicone, Complete
13	NSS	Screw, 1/4-28 x 5/16" (3)
14	NSS	Body ass'y
15	NSS	Screw, Idle
16	S2-16	Spring, idle screw
17	NSS	Plug, 1/8 NPT
18	G1-11	Gasket, throttle body to mixer
19	S1-19	Scrw, 12-24 x 5/8" SEMS (4)
20	NSS	Wire, terminal
21	NSS	Fitting, 1/4-28 to 1/4" hose
22	NSS	Hose
23	NSS	Fitting, 1/4-28 to 3/16" hose



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES &amp; ACCESSORIES

## AIR GAS VALVE ASSEMBLIES

PART#	DESCRIPTION
AV1-14-12	Dual fuel for vacuum lift CA125M-10, w/ Hydrin diaphragm
AV1-14-12-2*	Dual fuel for vacuum lift CA125M-10, w/ silicone diaphragm
AV1-1447-2**	For std. feedback, w/silicone diaphragm

\*\*Modification required for vacuum lift operation.

## AIR CLEANER ASSEMBLIES

PART#	DESCRIPTION
AF1-5*	71L/s (150 cfm), 172 mm (6.75") O.D., 60.3 mm (2.38") high
AF1-8*	118L/s (250 cfm), 234 mm (9.25") O.D., 76.2 mm (3.00") high
AF1-14*	236L/s (500 cfm), 228 mm (9.00") O.D., 191 mm (7.50") high

## ADAPTERS

PART#	DESCRIPTION
A2-7	Air Horn 66.7 mm (2.63") dia.
A2-8	Air Horn 58.7 mm (2.31") dia.
A2-9*	Air Horn 56.4 mm (2.22") dia.
A2-33*	Air Horn 80 mm (3.16") dia.
A2-34	Air Horn 54 mm (2.13") dia.
A2-47*	Adapter, Air Cleaner Base
AA3-29-1*	CA125M to 2-1/16" hose
AA3-29-2*	CA125M to 2-1/16" hose, tapped 12-24
A3-29-3*	CA125M to 2-1/16" hose, w/ mounting base
A3-30*	200M, CA225M to 2-5/8" hose (use w/ A3-32-1)
A3-31*	CA125M to 2-1/4" hose
AA3-32-1	CA125 to IMPCO 2B throttle body

## CA125 SERIES CARBURETORS

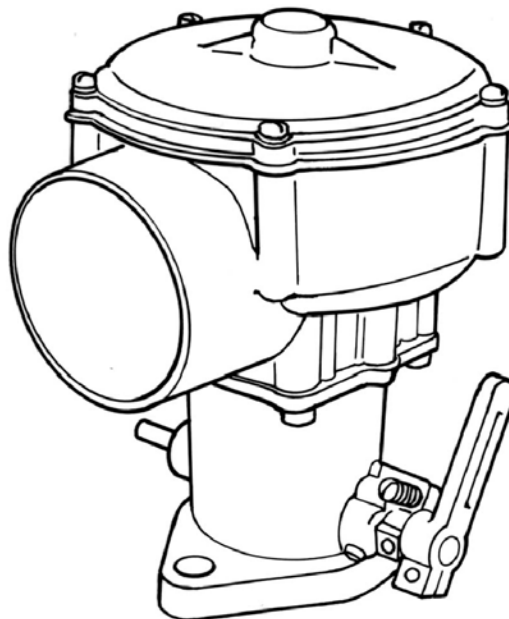
PART#	DESCRIPTION
<u>CA125-100-2^</u>	Carburetor, 1-1/2" SAE flange w/ Silicone
CA125-134	Carburetor, governor ass'y, Hyster forklift
CA125-26	Carburetor, 1-1/2" SAE flange, 2-5/8" Air Horn
<u>CA125-38^</u>	Carb, 1-1/4" SAE flange, 2-5/16" Air Horn, EV1-14 72/80 flow
<u>CA125-44^</u>	Carburetor, 1-1/4" SAE flange, 2-5/16" Air Horn
CA125-52	Carb, 1-1/4" & 1-1/2" SAE flange, no Air Horn, w/ bracket & swivel
<u>CA125-6^</u>	Carb 1-1/4" & 1-1/2" SAE flange, 2-5/16" Air Horn
CA125-76-2	Carb, 1-1/4" SAE flange (short), 80 mm Air Horn, spring hole R, w/ AV1-14-76-2
<u>CA125-8^</u>	Carb, 1-1/4" & 1-1/2" SAE flange, 2-5/16" center stud Air Horn

## CA125 SERIES MIXERS

PART#	DESCRIPTION
CA125M	Mixer with Hydrin Diaphragm
CA125M-10	Mixer, dual fuel, vacuum lift mixer with Hydrin diaphragm
<u>CA125M-10-2^</u>	Mixer, dual fuel, vacuum lift mixer with Silicone diaphragm
	Mixer with Silicone diaphragm
CA125M-292	Mixer Assembly for CA125-134
CA125M-3	Lean flow mixer with Silicone diaphragm

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model 200



### DESCRIPTION

The Model 200 is a single diaphragm air-valve carburetor/mixer. It offers a 90° air inlet to provide low overhead clearance, and is available with several air horn and throttle valve options. This unit is available for LPG Vapor or Natural Gas for applications with airflow requirements up to 345 CFM (162.8 L/s). All DG model mixers reduce airflow by 30%.

The Model 200 is also available for feedback applications with the 'FB' designation. The 200 mixer provides a convenient 1/8" balance port at the air inlet. Additional low speed idle mixture control can be obtained to lean air/fuel mixtures through the use of optional shims.

### SPECIFICATIONS

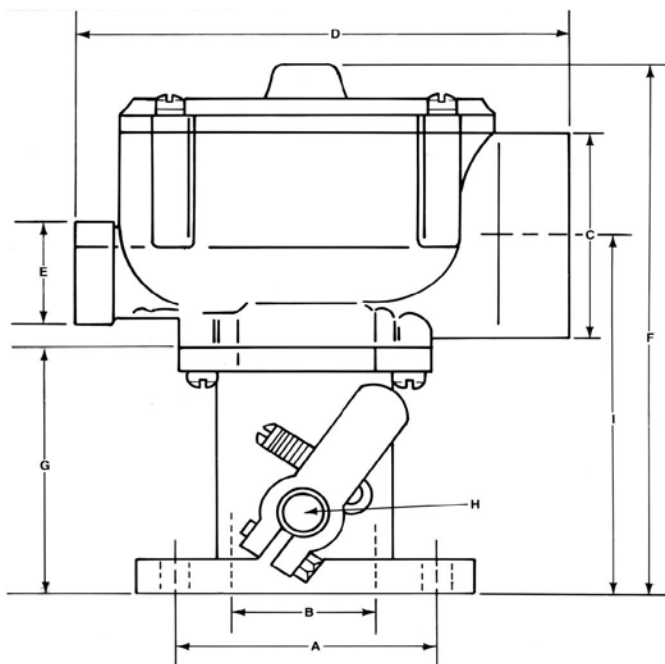
Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	172 hp (128.0 kW) @ 276 CFM (130 L/s) and 1.5" Hg manifold depression
	215 hp (160.3 kW) @ 345 CFM (162.8 L/s) and 2.0" Hg manifold depression

## Model 200

### Carburetors & Mixers



### DIMENSIONS



STD. CARB.	MIXER	THRTL. BODY	SAE FLANGE	A CTR. TO CTR. BOLT SPACING	B BORE	C MIXER AIR HORN DIA.	D OVERALL WIDTH	E NPT INLET FITTING	F OVERALL HEIGHT	G THROTTLE BODY HEIGHT	H THROTTLE SHAFT DIA.	I FLANGE TO CTR. OF AIR HORN
<u>200-2<sup>^</sup></u>	<u>200M-1<sup>^</sup></u>	AT2-4-2	1-1/2"	74.6 mm (2.938")	42.9 mm (1.688")	66.7 mm (2.625")	165 mm (6.500")	3/4"	175 mm (6.875")	69.9 mm (2.750")	7.9 mm (0.313")	110 mm (4.334")
<u>200-2-2<sup>^</sup></u>	200M-1-2	AT2-4-2	1-1/2"	74.6 mm (2.938")	42.9 mm (1.688")	66.7 mm (2.625")	165 mm (6.500")	3/4"	175 mm (6.875")	69.9 mm (2.750")	7.9 mm (0.313")	110 mm (4.334")
<u>200-4<sup>^</sup></u>	200M-1 <sup>^</sup>	AT2-5	1-3/4"	84.1 mm (3.313")	49.2 mm (1.938")	66.7 mm (2.625")	165 mm (6.500")	3/4"	187 mm (7.375")	82.6 mm (3.250")	9.5 mm (0.375")	123 mm (4.844")
200-6	200M-2	AT2-6 <sup>^</sup>	2"	90.5 mm (3.563")	55.6 mm (2.188")	77.8 mm (3.063")	165 mm (6.500")	3/4"	187 mm (7.375")	82.6 mm (3.250")	9.5 mm (0.375")	123 mm (4.844")
200-6-2	200M-2-2	AT2-6 <sup>^</sup>	2"	90.5 mm (3.563")	55.6 mm (2.188")	77.8 mm (3.063")	165 mm (6.500")	3/4"	187 mm (7.375")	82.6 mm (3.250")	9.5 mm (0.375")	123 mm (4.844")
<u>200-8<sup>^</sup></u>	200M-2	AT2-5	1-3/4"	84.1 mm (3.313")	49.2 mm (1.938")	77.8 mm (3.063")	165 mm (6.500")	3/4"	187 mm (7.375")	82.6 mm (3.250")	9.5 mm (0.375")	123 mm (4.844")
200-8-2	200M-2-2	AT2-5	1-3/4"	84.1 mm (3.313")	49.2 mm (1.938")	77.8 mm (3.063")	165 mm (6.500")	3/4"	187 mm (7.375")	82.6 mm (3.250")	9.5 mm (0.375")	123 mm (4.844")
<u>DG200-29<sup>^</sup></u>	NSS	NSS		90.5 mm (3.563")	55.6 mm (2.188")	77.8 mm (3.063")	165 mm (6.500")	3/4"	187 mm (7.375")	82.6 mm (3.250")	9.5 mm (0.375")	123 mm (4.844")

### MIXERS ONLY

MIXER	MIXER AIR HORN DIA.	OVERALL WIDTH	NPT INLET FITTING	FLANGE TO CTR. OF AIR HORN
LH200M-2-2	77.8 mm (3.063")	165 mm (6.500")	3/4"	123 mm (4.844")
DG200M-2 -2	77.8 mm (3.063")	165 mm (6.500")	3/4"	123 mm (4.844")

Note: All DG model mixers reduce airflow by 30%.

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model 200

Carburetors & Mixers



## COMPONENTS

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

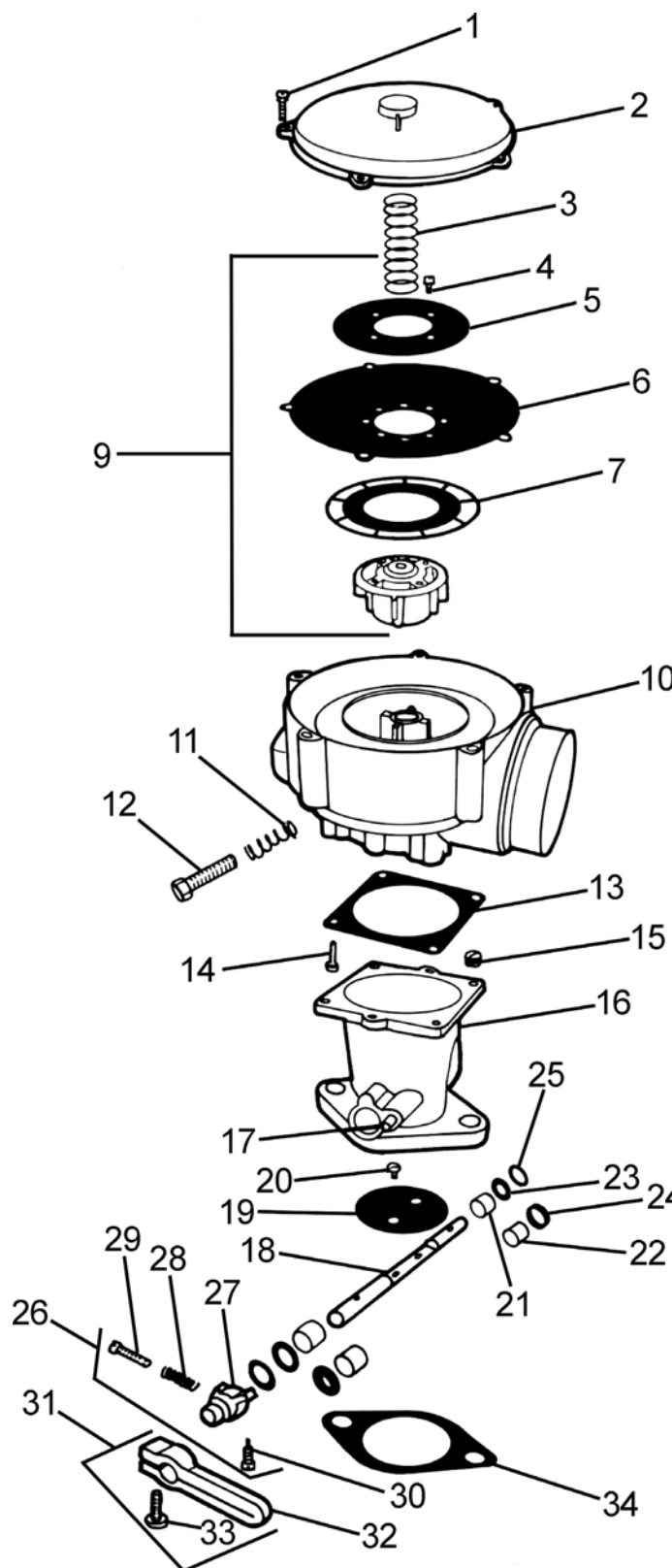


# Model 200

## Carburetors & Mixers



ITEM#	PART#	DESCRIPTION
1	S1-3	Screw, 10-24 x 5/8" SEMS (4)
2	C1-18	Cover
3	S2-17	Spring, Air Valve
4	S1-12	Screw, 8-32 x 5/16" SEMS (4)
5	P2-21	Plate, backup
6	D1-16-1	Diaphragm
	D1-16-2	Diaphragm, Silicone
7	R1-17	Ring, air valve
8	NSS	Air-gas Valve Assy
9	AV1-12-6	Air-gas Valve Assy w/diaphragm
	DG-AV1-12-2	Digester Gas Valve Assy w/Silicon diaphragm
10	NSS	Body Assy, 66.7mm (2.625") Air Horn
	NSS	Body ass'y, 77.8 mm (3.063") Air Horn
11	S2-16	Spring, Idle Screw
12	NSS	Screw, Idle
13	G1-21	Gasket, throttle body to mixer
14	S1-19	Screw, 12-24 x 5/8 SEMS (4)
15	NSS	Plug, 1/8 NPT
16	NSS	(Refer to Throttle Body Chart)
17	NSS	Pin, throttle stop (2)
18	S5-2	Throttle Shaft, 7.9mm (0.313") dia.
	S5-3	Throttle Shaft, 9.5mm (0.375") dia.
	NSS	Butterfly, 38.1 mm (1.500")
19	NSS	Butterfly, 44.5 mm (1.750")
	NSS	Butterfly, 50.8 mm (2.000")
20	S1-12	Screw, 8-32 x 5/16" SEMS (2)
21	B2-13	Bearing, Oilite, 7.9 mm (0.313") I.D. (2)
22	B2-7	Bearing, needle, 7.9 mm (0.313") I.D.
	NSS	Bearing, needle, 9.5 mm (0.375") I.D.
23	NSS	Seal, 7.9 mm (0.313") shaft (2)
	S3-11	Seal, 9.5 mm (0.375") shaft (2)
24	S3-20	Seal, Internal 9.5mm (0.375") ID Optional
25	R1-9	Ring, seal retainer, 7.9 mm (0.313") shaft (2)
	R1-8	Ring, seal retainer, 9.5 mm (0.375") shaft (2)
26	AL1-8-2	Throttle Stop Assy 7.9mm (0.313") ID
	AL1-10	Throttle Stop Assy 9.5 mm (0.375") ID
27	NSS	Throttle stop lever, 7.9 mm (0.313") I.D
	NSS	Throttle stop lever, 9.5 mm (0.375") I.D
28	S2-15	Spring, Stop Screw
29	S1-21	Stop screw, 10-32 x 3/4"
30	S1-18	Pin Screw, Throttle Stop
31	AL1-7-1	Throttle Lever, w/S1-17, L1-7
	AL1-9-1	Throttle Lever, w/S1-26, L1-9
	NSS	Throttle Lever 58.7 mm (2.31") long, 0.562" mounting ID
32	NSS	Throttle Lever
33	NSS	Screw, 10-24 x 5/8"
	NSS	Screw, 12-24 x 5/8"
34	G1-19	Gasket, 38.1 mm (1.500") flange
	G1-23	Gasket, 44.5 mm (1.750") flange
	G1-24	Gasket, 50.8 mm (2.000") flange



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES & ACCESSORIES

### MIXERS, LP GAS (STANDARD)

PART#	DESCRIPTION
200M-1	For 66.7 mm (2.63") Air Horn
200M-1-2	For 66.7 mm (2.63") Air Horn, w/ silicone diaphragm
200M-2	For 77.8mm (3.06") Air Horn
200M-2-2	For 77.8mm (3.06") Air Horn, w/ silicone diaphragm
<u>200M-2-3*</u>	For 77.8mm (3.06") A.H., w/4 Air Valve Vac Ports
<u>FB200M-1-2^</u>	For ATECO, feedback, 66.7 mm (2.63") Air Horn
<u>FB200M-2-2^</u>	For feedback, 77.8 mm (3.06") Air Horn, w/silicone diaphragm
LH200M-2-2	Mixer, 3 1/16" Air Horn LH VMQ
DG200M-2 -2	Mixer, 3 1/16" Air Horn DG VMQ

### ADAPTERS

PART#	DESCRIPTION
<u>AA3-19^</u>	Adapt. 200M to Holley 2B throttle body
A3-28	Adapt. 200M to 3-1/16" hose
A3-30*	Adapt. 200M to 2-5/8" hose
<u>AA3-32-2^</u>	Adapt. 200M to CA100 throttle body
<u>AA3-47-2^</u>	Adapt. 200M to CA425 throttle body
<u>AA3-48-2^</u>	Adapt. 200M to CA425 hose elbow

### RING SPACER

PART#	DESCRIPTION
<u>R1-30^</u>	Ring, Air Valve Spacer, for AV1-12 (to lean mixture)

### RETURN SPRINGS

PART#	DESCRIPTION
AS2-50-2	7.9 mm (0.31") throttle return
AS2-50-3	9.5 mm (0.38") throttle return
AS2-50-4	11.1 mm (0.44") throttle return

PART#	DESCRIPTION
AT2-4-2	Standard, 38.1 mm (1.50") flange, 7.9 mm (0.31") shaft dia.
AT2-5	Standard, 44.5 mm (1.75") flange, 9.5 mm (0.38") shaft dia.
AT2-6*	Standard, 50.8 mm (2.00") flange, 9.5 mm (0.38") shaft dia., center bore
AT2-6-3*	50.8 mm (2.00") flange, 9.5 mm (0.38") shaft dia., center bore, w/ needle bearings & internal seal

### THROTTLE BODIES (TWO BARREL)

PART#	DESCRIPTION
AT2-11-1*	Standard, 31.8 mm (1.25") flange, 11.1 mm (0.44") shaft dia.
AT2-12*	Standard, 38.1 mm (1.50") flange, 11.1 mm (0.44") shaft dia.
AT2-13-1*	Standard, Holley, 11.1 mm (0.44") shaft dia.

### THROTTLE SHAFTS

PART#	DESCRIPTION
S5-2	7.9 mm (0.31") dia., 127 mm (5.00") long, standard AT2-4-2
S5-3	9.5 mm (0.38") dia., 138 mm (5.44") long, standard on AT2-5, AT2-6
S5-4	11.1 mm (0.44") dia., 179 mm (7.06") long, standard on 2B throttle bodies
S5-7	7.9 mm (0.31") dia., 133 mm (5.25") long (5.00")
S5-11	7.9 mm (0.31") dia., 156 mm (6.13") long

### SPACERS

PART#	DESCRIPTION
AS3-45	Spacer 20.6 mm (0.81") high

## ASSEMBLIES & ACCESSORIES (CONTINUED)

### LEVERS

PART#	DESCRIPTION
AL1-7-1	Ass'y, 44.5 mm (1.75") long (std. on AT2-3, AT2-4-1, AT2-4-3, AT2-16-1)
<u>AL1-7-2^</u>	Ass'y, w/ 0.04 mm (0.0015") ball stud, 44.5 mm (1.75") long
AL1-7-3	Ass'y, 33.3 mm (1.31") long (std. on AT2-1, AT2-2, AT2-23)
AL1-7-4	Ass'y, w/ swivel, 44.5 mm (1.75") long
AL1-8-2	Stop ass'y, 7.9 mm (0.31") mounting I.D., 19.1 mm (0.75") long (std. on AT2-3, AT2-4-1, AT2-4-3, AT2-16-1, AT2-23)
<u>AL1-8-4^</u>	Stop ass'y, 7.9 mm (0.31") mounting I.D., 19.1 mm (0.75") long
AL1-9-1	58.7 mm (2.31") long, standard on AT2-11-1, AT2-6)
<u>AL1-9-1A^</u>	58.7 mm (2.31") long, 0.562" mounting ID
AL1-10	Lever stop ass'y, 9.5 mm (0.38") mounting ID 22.2mm (0.88") long, standard on AT2-5, AT2-6
AL1-11-1	Lever stop ass'y, 11.1 mm (0.44") mounting ID 25.4mm (1.00") long, standard on AT2-11-1, AT2-12, AT2-13-1, AT2-15
AL1-12-1	77.8mm (3.06") long
AL1-12-3	58.7mm (2.31") long, standard on AT2-11-1, AT2-13-1, AT2-12-1-, AT2-15
<u>AL1-25-2^</u>	Ass'y, spring loaded, floating 7.9 mm (0.31") mounting I.D., 34.9 mm (1.38") long, w/ AC2-14-2
AL1-27-1	Ass'y, floating 7.9 mm (0.31") mounting I.D., 54.0 mm (2.13") long, w/AC2-12
AL1-33	Ass'y, shaft clamp, 7.9 mm (0.31") mounting I.D., 49.2 mm (1.94") long
<u>AL1-46^</u>	Ass'y, steel shaft clamp, 7.9 mm (0.31") mounting I.D., 47.6 mm (1.88") long

#### NOTE:

AL1-7-1 through AL1-7-4 levers used w/ AL1-8 lever stop

AL1-9 levers used w/AL1-10 lever stop

AL1-12 lever used w/AL1-11 lever stop

See Accessories section of catalog for other optional levers.

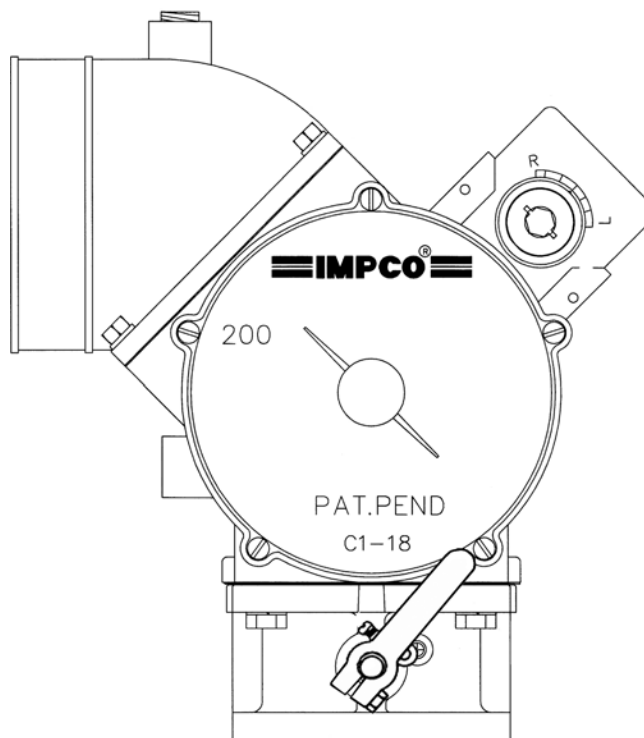
### AIR GAS VALVES

PART#	DESCRIPTION
AV1-12	Standard, w/Hydrin diaphragm
AV1-12-2	Standard, w/Silicone diaphragm
AV1-12-3	For 1 & 2 cylinder engines, w/Hydrin diaphragm & ball check ass'y
<u>AV1-12-3-2^</u>	For 1 & 2 cylinder engines, w/Silicone diaphragm & ball check ass'y
AV1-12-6	Rich, w/ Hydrin diaphragm
AV1-1245	Standard feedback, w/Hydrin diaphragm
AV1-1245-2	Standard feedback, w/Silicone diaphragm
<u>AV1-1245-4^</u>	Feedback, richer idle
<u>DG-AV1-12^</u>	For digester gas (550-750 BTU), w/Hydrin diaphragm
DG-AV1-12-2	For digester gas (550-750 BTU), w/Silicone diaphragm
LH-AV1-12-2	Valve Ass'y, Low Heat, Silicone
CV1-12	Valve Ass'y, Natural Gas
CV1-12-2	For Natural Gas, w/Silicone diaphragm

### SLEEVE DIGESTER MIXER

PART#	DESCRIPTION
S6-1	Sleeve DG200

## Model 200D



## DESCRIPTION

The Model 200D is a dual diaphragm air-valve carburetor/ fuel mixer. It offers a 90° air inlet to provide low overhead clearance, and is available with several Air Horn and throttle valve options. This unit is available for LPG Vapor, Natural Gas, Digester/Landfill Gas applications as low as 500 BTU for with airflow requirements up to 468 CFM (221 L/s). All DG model mixers reduce airflow by 30%.

The Model 200D is also available for feedback applications with the 'FB' designation, and offers tamper resistant compliance using the optional tamper resistant mixture adjustment caps. The 200D mixer provides a convenient 1/4" balance port at the air inlet, and a slow speed "idle" adjustment. Additional low speed idle mixture control can be obtained to lean air/fuel mixtures through the use of optional shims. The valve can be turned with an imperial 5/16" or metric 8mm hex key from both sides and can be made tamper resistant by using a cap to comply with tamper resistant emission regulations by using Tamper Resistant Plug, part number P3-17956-20, purchased separately.

## SPECIFICATIONS

Fuel Type .....	LPG Vapor, Natural Gas, or Digester/Landfill Gas (550 - 2,500 BTU)
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm .....	Material      Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	292 hp (217.7 kW) @ 468 CFM (221 L/s) and 2,500 BTU per cubic foot with 2.0" Hg manifold depression

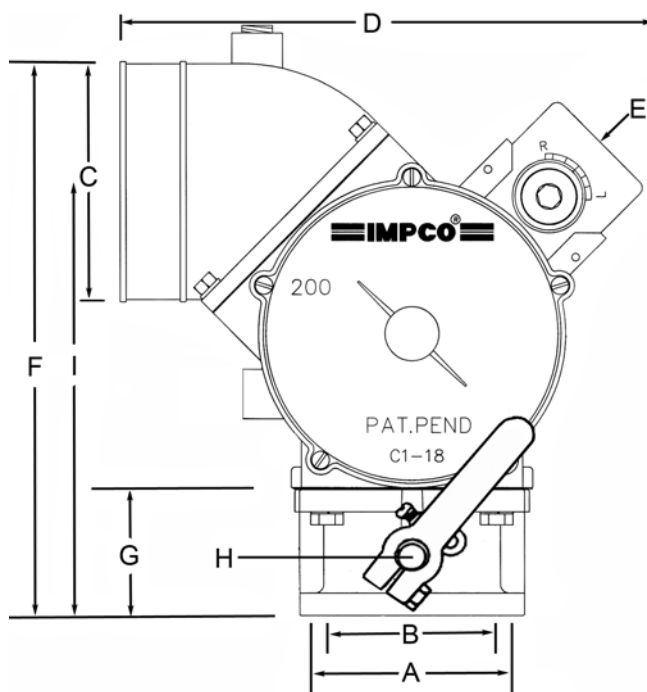
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# Model 200D

## Carburetors & Mixers



### DIMENSIONS



STD CARD	MIXER	THRTL BODY	SAE FLANGE	A CTR. TO CTR. BOLT SPACING	B BORE	C MIXER AIR HORN DIA.	D OVERALL WIDTH	E NTP INLET	F OVERALL HEIGHT	G THRTL BODY HEIGHT	H THRTL SHAFT DIA.	I FLANGE TO CTR OF AIR HORN
200D-1^	200DM	AT2-7	2.5"	73.0mm (2.875")	68.2mm (2.69")	88.9mm (3.50")	224.6mm (8.84")	1-1/4"	227.3mm (8.95")	53.9mm (2.13")	11.1mm (.44")	183.0mm (7.2")
<u>200D-3^</u>	200DM	AT2-7	2.5"	73.0mm (2.875")	68.2mm (2.69")	101.6mm (4.00")	224.6mm (8.84")	1-1/4"	233.7mm (9.20")	53.9mm (2.13")	11.1mm (.44")	183.0mm (7.2")
200D-3-2	200DM-2	AT2-7	2.5"	73.0mm (2.875")	68.2mm (2.69")	101.6mm (4.00")	224.6mm (8.84")	1-1/4"	233.7mm (9.20")	53.9mm (2.13")	11.1mm (.44")	183.0mm (7.2")
<u>200D-5^</u>	200DM	AT2-8	3"	82.6mm (3.25")	82.6mm (3.25")	101.6mm (4.00")	224.6mm (8.84")	1-1/4"	235.0mm (9.27")	56.0mm (2.19")	11.1mm (.44")	184.7mm (7.27")
<u>200D-7^</u>	200DM	AT2-7	2.5"	73.0mm (2.875")	68.2mm (2.69")	101.6mm (4.00")	224.6mm (8.84")	1-1/4"	233.7mm (9.20")	53.9mm (2.13")	11.1mm (.44")	183.0mm (7.2")
<u>DG200D-3^</u>	N/A	AT2-7	2.5"	73.0mm (2.875")	68.2mm (2.69")	101.6mm (4.00")	224.6mm (8.84")	1-1/4"	233.7mm (9.20")	53.9mm (2.13")	11.1mm (.44")	183.0mm (7.2")

Note: All DG model mixers reduce airflow by 30%.

### TAMPER RESISTANT PLUG

PART #	DESCRIPTION
P3-17956-20	Plug, Expansion

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model 200D

Carburetors & Mixers



## COMPONENTS

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

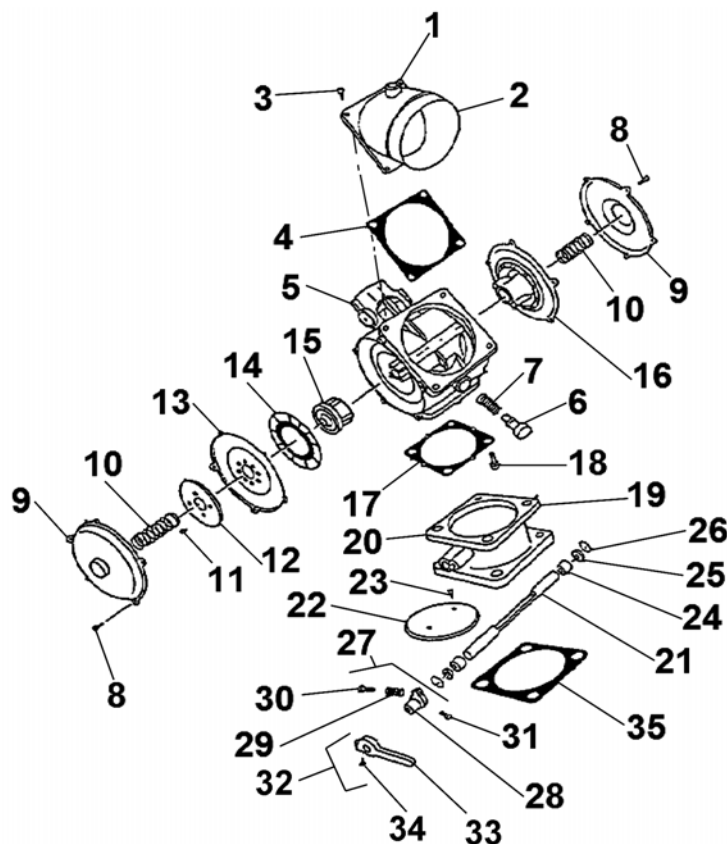
## Model 200D

### Carburetors & Mixers



ITEM #	PART #	DESCRIPTION
1	NSS	Plug, 1/4" NPT
2	E1-7	Air Horn
3	NSS	Screw, 1/4-20 x 3/4" SEMS
4	G1-26*	Gasket, Air Horn
5	AB1-12L	Body Assy, Left Hand 200 DM
	AB1-12R	Body Assy, Right Hand 200 D
6	AS1-33	Screw, Idle (Early Models Only)
7	NSS	Spring, Idle (Early Models Only)
8	S1-3	Screw, 10-24 x 5/8" SEMS
9	C1-18	Cover
10	S2-17	Spring, air valve
11	S1-12	Screw, 8-32 x 5/16" SEMS
12	NSS	Plate, Back up
13	D1-16-1	Diaphragm
	D1-16-2*	Diaphragm, Silicone
14	R1-17	Ring, Air Valve
15	BV1-12	Air Gas Valve Ass'y
16	AV1-12	Valve and Diaphragm Ass'y
	AV1-12-2	Air Valve Assy w/Silicone Diaphragm.
17	G1-25*	Gasket, Throttle Body to Mixer
18	S1-30	Screw, 5/16 - 18 x 7/8" Hex
19	NSS	Throat Assy
20	P1-6	Pin, throttle Stop
21	S5-4	Throat Shaft, 7/16" Dia
22	F2-7	Fly, 2 - 1/2"
	F2-8	Fly, 3"
23	NSS	Screw, 12-24 x 5/8" SEMS
24	B3-44	Permaglide Bearing, 7/16" ID
	NSS*	Needle Bearing, 7/16" ID
25	S3-96	Seal, Internal 7/16" Shaft
	NSS*	Seal, 7/16" Shaft
26	R1-52	Ring, Seal Retainer
	R1-11*	Ring, Seal Retainer
27	AL1-11-1	Throttle Stop Ass'y
28	NSS	Throttle Stop Lever
29	S2-15	Spring, Idle Stop
30	S1-12	Screw, Idle Stop 10-32 x 3/4"
31	S1-18	Pin, Screw Throttle Stop
32	AL1-12-3	Throttle Lever Ass'y, Long
33	NSS	Throttle Lever
34	S1-32	Screw, 1/4 - 20 x 7/8" Hex
35	G1-27*	Gasket, 2-1/2" Flange
	G1-28*	Gasket, 3" Flange

\*Included in Repair Kit RK-200D-1



**Note:** During reassembly, the Diaphragm, Air Valve and Assembly must be installed with the Paper Gasket facing downward and the two slots in the center of the Air Valve installed at a 90 degree angle to the square boss. It is recommended that prior to disassembly of the Air Valve & Diaphragm Assembly, the individual parts be marked noting placement and orientation to ensure proper reassembly. Refer to IMPCO TSB-132 for additional information.



## ASSEMBLIES & ACCESSORIES

### MIXERS

PART #	DESCRIPTION
<u>200DM-901</u> <sup>^</sup>	Mixer, Ass'y Turbo Cummins L10

### THROTTLE BODIES

PART #	DESCRIPTION
AT2-7	Throat Assy, 2.5" SAE
AT2-8	Throat Assy, 3.0" SAE

### THROTTLE SHAFT

PART #	DESCRIPTION
S5-4	Shaft 7/16" X 7.06

### AIR-GAS VALVE ASSEMBLIES

PART #	DESCRIPTION
AV1-12	Air Gas Valve Ass'y, STD. Hydrin
AV1-12-3	Air Gas Valve Ass'y, STD. w/ Silicone
AV1-1245	Air Gas Valve Ass'y, STD. w/ Ball Check
AV1-1245-2	Air Gas Valve Ass'y, Feedback Silicone
CV1-12	Air Gas Valve Ass'y, Natural Gas Hydrin
CV1-12-2	Air Gas Valve Ass'y, Natural Gas Silicone
<u>DG-AV1-12</u> <sup>^</sup>	Air Gas Valve Ass'y, Digester Gas Hydrin
DG-AV1-12-2	Air Gas Valve Ass'y, Digester Gas Silicone
LH-AV1-12-2	Air Gas Valve Ass'y, Low heat Gas Silicone

### ADAPTERS

PART #	DESCRIPTION
E1-7	Air Horn, 45° elbow 4" Dia.
<u>E1-8</u> <sup>^</sup>	Air Horn, 45° elbow 3.5" Dia.
<u>E1-7-2</u> <sup>^</sup>	Air Horn, 45° elbow 4" Dia. (3) Balance Ports

### LEVERS

PART #	DESCRIPTION
AL1-11-1	Stop Assembly, 7/16" mounting ID
AL1-12-1	Assembly, 3-1/16" long
AL1-12-3	Assembly, 2-5/16" long Std.

### RETURN SPRINGS

PART #	DESCRIPTION
AS2-50-4	7/16" Throttle Return

### RING SPACER

PART #	DESCRIPTION
<u>R1-30</u> <sup>^</sup>	Ring, Air Valve Spacer

### BRACKET ASSEMBLY

PART #	DESCRIPTION
AB4-4	Bracket, Throttle Cable/Boden (Used on 200D-7)

### GASKETS

PART #	DESCRIPTION
G1-26	Air Horn to Mixer Body
G1-27	2.5" SAE Flange to Mixer
G1-28	3.0" SAE Flange to Mixer

### REPAIR KIT

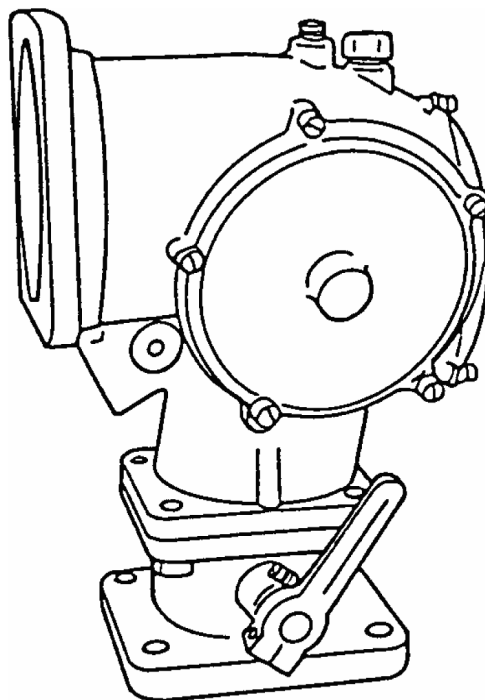
PART #	DESCRIPTION
<u>RK-200DM-887</u> <sup>^</sup>	Repair Kit, 200D
<u>RK-200D-1</u> <sup>^</sup>	Repair Kit, 200D

### TAMPER RESISTANT CAPS

PART #	DESCRIPTION
P3-17956-20	Cap/Plug



## Model 200T



### DESCRIPTION

The Model 200T is a triple diaphragm air-valve carburetor/mixer that offers a 90° air inlet to provide low overhead clearance, and is available with several air horn and throttle valve options. This unit is available for LPG Vapor, Natural Gas, and Digester Gas applications as low as 500 BTU with airflow requirements up to 680 CFM (320.9 L/s). All DG model mixers reduce airflow by 30%. The Model 200T is also available for feedback applications with the 'FB' designation.

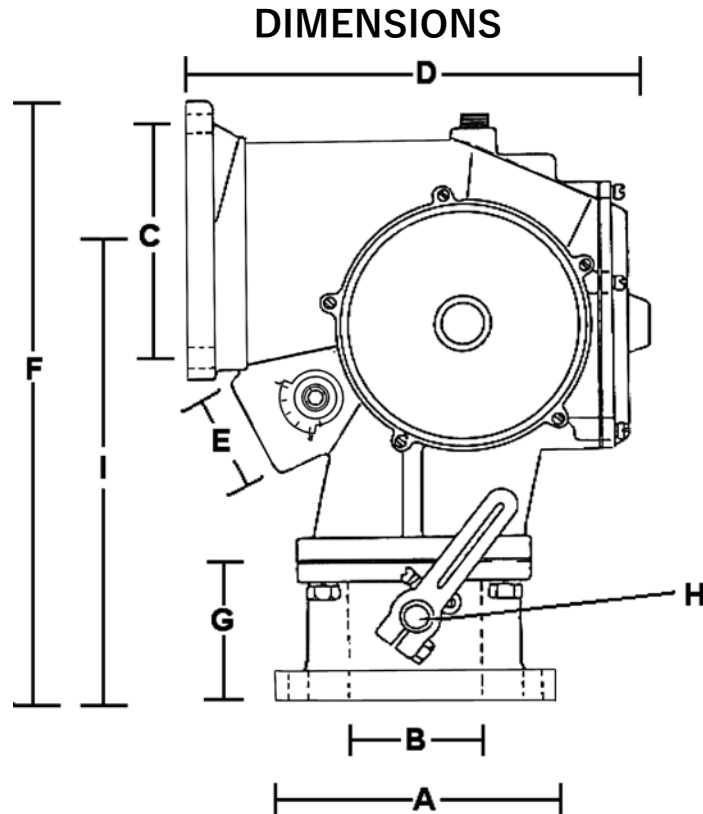
The 200T mixer provides a convenient 1/4" balance port at the air inlet. Additional low speed idle mixture control can be obtained to lean air/fuel mixtures through the use of optional shims.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor, Natural Gas, or Digester/Landfill Gas (550 - 2,500 BTU)
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Rating .....	-40° C to 120° C (-40° F to 250° F)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	425 hp (316.9 kW) @ 680 CFM (320.9 L/s) and 2.0" Hg manifold depression

# Model 200T

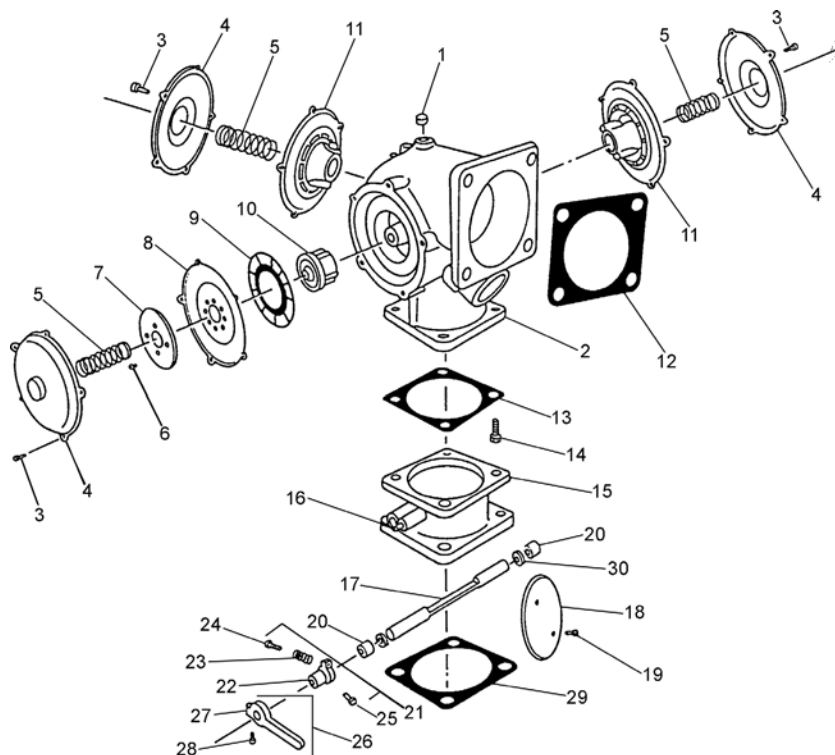
## Carburetors & Mixers



				A	B	C	D	E	F	G	H	I
STD. CARB.	MIXER	THRTL. BODY	SAE FLANGE	CTR. TO BOLT SPACING	BORE	MIXER AIR HORN DIA.	OVRL. WIDTH	NPT INLET	OVRL. HEIGHT	THRTL. BODY HEIGHT	THRTL. SHAFT DIA.	FLANG. TO CTR. OF AIR HORN
200T-1	<u>200TM-1^</u>	AT2-9	3-1/2"	94.4 mm (3.72")	93.6 mm (3.69")	98.4 mm (3.88")	226.6 mm (9.0")	1-1/4"	279.4 mm (11.0")	66.6 mm (2.63")	12.7 mm (.50")	222.2 mm (8.75")
200T-1-2	200TM-1-2	AT2-9	3-1/2"	94.4 mm (3.72")	93.6 mm (3.69")	98.4 mm (3.88")	226.6 mm (9.0")	1-1/4"	279.4 mm (11.0")	66.6 mm (2.63")	12.7 mm (.50")	222.2 mm (8.75")
<u>200T-3^</u>	<u>200TM-1^</u>	AT2-10	4"	104.7 mm (4.13")	93.6 mm (3.69")	114.3 mm (4.50")	226.6 mm (9.0")	1-1/4"	304.8 mm (12.0")	69.8 mm (2.75")	12.7 mm (.50")	234.9mm (9.25")
<u>200T-3-2^</u>	<u>200TM-1^</u>	AT2-10	4"	104.7 mm (4.13")	93.6 mm (3.69")	114.3 mm (4.50")	226.6 mm (9.0")	1-1/4"	304.8 mm (12.0")	69.8 mm (2.75")	12.7 mm (.50")	234.9mm (9.25")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## COMPONENTS



ITEM #	PART #	DESCRIPTION
1	NSS	Plug, 1/4" NPT
	AB1-14	Body Assy, 3 1/2"
2	AB1-14L	Body Assy, 3 1/2", Left Hand
	NSS	Body Assy 200T 4"
3	S1-3	Screw, 10-24 x 5/8" SEMS
4	C1-18	Cover
5	S2-17	Spring, Air Valve
6	S1-12	Screw, 8-32 x 5/16" SEMS
7	P2-21	Plate, Back up
8	D1-16-1	Diaphragm
	D1-16-2	Diaphragm, Silicone
9	R1-17	Ring, Air Valve
10	BV1-12	Air Gas Valve Ass'y
11	<u>AV1-12*</u>	Valve and Diaphragm Ass'y
12	G1-31	Gasket, 3-1/2" Air Horn
13	G1-30	Gasket, Throttle Body to Mixer
14	S1-34	Screw, 3/8 - 16 x 1" SEMS

ITEM #	PART #	DESCRIPTION
15	NSS	Throat
16	AV1-12	Pin, Throttle Stop
17	S5-5	Shaft, Throttle 1/2" (AT2-9)
	S5-4	Shaft, Throttle 7/16" (AT2-8)
18	F2-9	Fly, 3-11/16" Dia.
19	S1-35	Screw, 10-32 x 3/8" SEMS
	B3-43	Permaglide Bearing, 1/2" ID
	B3-44	Permaglide Bearing, 7/16" ID
21	AL1-11-2	Throttle Stop Ass'y, 1/2" ID
22	NSS	Throttle Stop Lever, 1/2" ID
23	S2-15	Spring, Idle Stop Screw
24	S1-21	Stop, Screw 10-32 x 3/4"
25	S1-18	Pin, Screw Throttle Stop
26	AL1-12-1	Throttle Lever s/screw
27	NSS	Throttle Lever
28	S1-32	Screw, 1/4" -20 x 7/8" Hex
	G1-29	Gasket, 3-1/2" Flange
29	G1-38	Gasket, Flange SAE AT2-10
	G1-39	Gasket, Flange 4" Air Horn
30	S3-93	Seal, Internal 7/16" Shaft

**Note:** During reassembly, the Diaphragm, Air Valve and Assembly must be installed with the paper gasket facing downward and the two slots in the center of the Air Valve installed at a 90 degree angle to the square boss. It is recommended that prior to disassembly of the Air Valve & Diaphragm Assembly, the individual parts be marked noting placement and orientation to ensure proper reassembly. Refer to IMPCO TSB-132.

## ASSEMBLIES & ACCESSORIES

### MIXERS

PART #	DESCRIPTION
200T-1	Carb.3-1/2" SAE Flange R.H.
200T-1-2	Carb.3-1/2"SAE, W/Sil
<u>200T-3*</u>	Carb 4"SAE Flg Rh Or Lh
<u>200T-3-2*</u>	Carb 4" SAE W/Sil Diaphragm
200TM-1-2	Mixer,3-1/2" W/Silicone

### THROTTLE BODIES

PART #	DESCRIPTION
AT2-9	3-1/2" SAE Flange, 7/16" Shaft w/ permgld.

### AIR-GAS VALVE ASSEMBLIES

PART #	DESCRIPTION
AV1-12	Air Gas Valve Ass'y, STD. Hydrin
AV1-12-2	Air Gas Valve Ass'y, STD. w/ Silicone
AV1-12-3	Air Gas Valve Ass'y, STD. w/ Ball Check
AV1-1245	Air Gas Valve Ass'y, Feedback Hydrin
AV1-1245-2	Air Gas Valve Ass'y, Feedback Silicone
CV1-12	Air Gas Valve Ass'y, Natural Gas Hydrin
CV1-12-2	Air Gas Valve Ass'y, Natural Gas Silicone
LH-AV1-12-2	Air Gas Valve Ass'y, Low heat Gas Silicone

### LEVERS

PART #	DESCRIPTION
AL1-11-1	Stop Assembly 7/16" mounting ID

### RETURN SPRINGS

PART #	DESCRIPTION
AS2-50-4	7/16" Throttle Return

### ADAPTERS

PART #	DESCRIPTION
E1-7	Air Horn, 45° elbow 4" Dia.
<u>E1-8*</u>	Air Horn, 45° elbow 3-1/2" Dia.

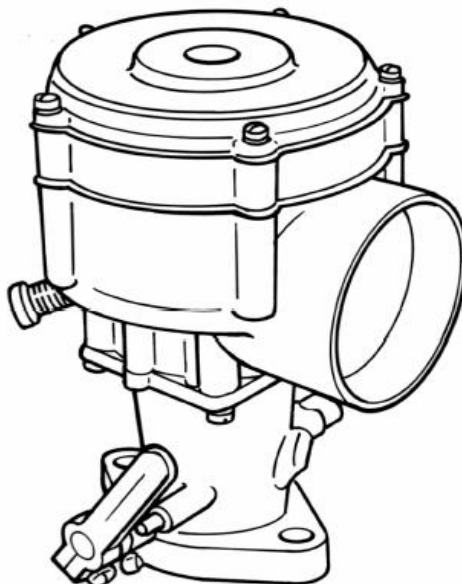
### RING SPACER

PART #	THROTTLE BODIES
<u>R1-30*</u>	Ring, Air Valve Spacer

### TAMPER RESISTANT CAPS

PART #	DESCRIPTION
P3-17956-20	Cap/Plug

## Model 210



### DESCRIPTION

The Model 210 can be used with LPG Vapor or Natural Gas for applications with airflow requirements up to 345 CFM (162.8 L/s). The 210 carburetor/mixer is designed primarily for one and two cylinder engines where severe intake manifold pressure pulsations are present. However, its use is not limited to these applications. Improved mixture control and air-gas valve durability can also benefit other applications in tuned intake systems where resonant pressure changes could adversely affect a standard 200/225 model assembly.

Note that the diaphragm is different from the standard 200/225 model and may have to be ordered as a separate component part (see dashpot assembly on page 83).

### SPECIFICATIONS

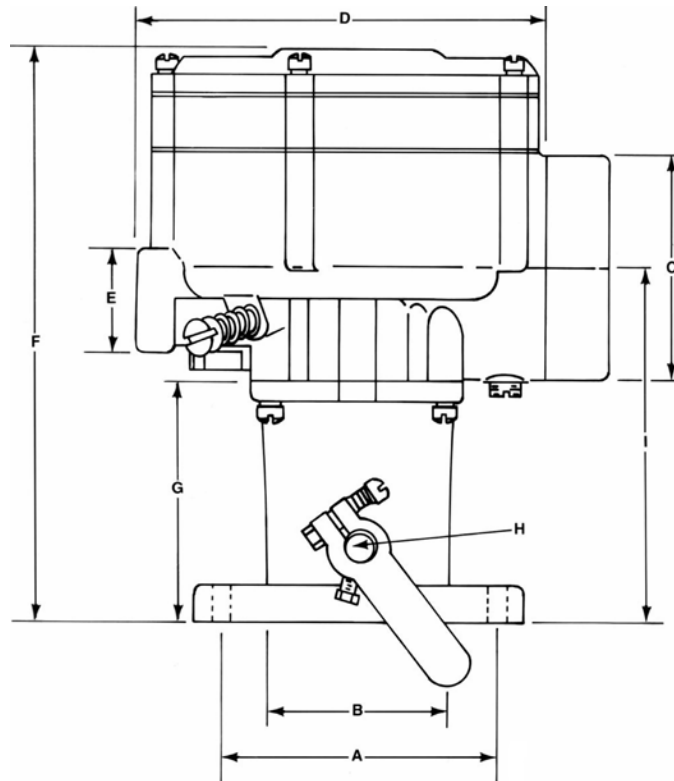
Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	215 hp(160.3 kW) @ 345 CFM (162.8 L/s) with 2.0" Hg manifold depression

# Model 210

## Carburetors & Mixers



### DIMENSIONS

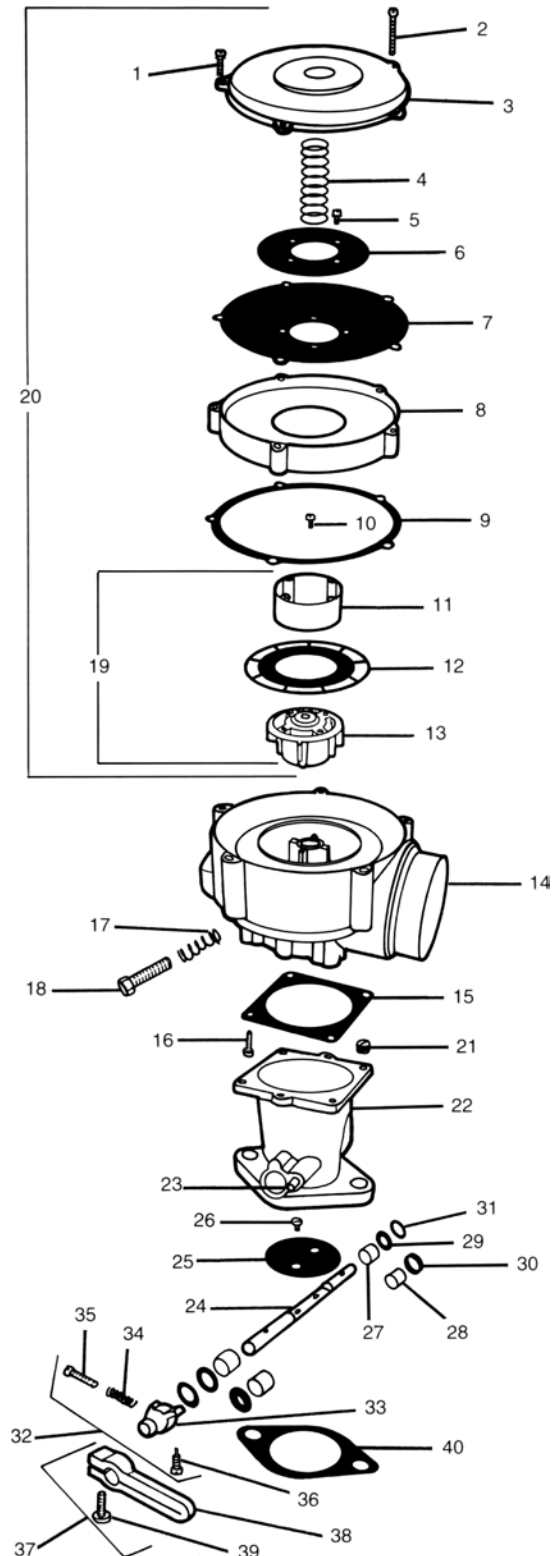


STD. CARB.	MIXER	THRTL. BODY	SAE FLANGE	CTR. TO CTR. BOLT SPACING	BORE	MIXER AIR HORN DIA.	OVRAL. WIDTH	NPT INLET	OVRAL. HEIGHT	THRTL. BODY HEIGHT	THRTL. SHAFT DIA.	FLANG. TO CTR. OF AIR HORN
210-4	<u>210M-1*</u>	AT2-5	1-3/4"	84.1 mm (3.31")	49.2 mm (1.94")	66.7 mm (2.63")	165 mm (6.50")	3/4"	206 mm (8.13")	82.6m (3.250")	9.5 mm (.38")	123 mm (4.84")
210-6	<u>210M-2*</u>	<u>AT2-6*</u>	2"	90.5 mm (3.56")	55.6 mm (2.19")	77.8 mm (3.06")	165 mm (6.50")	3/4"	206 mm (8.13")	82.6m (3.25")	9.5 mm (.38")	123 mm (4.84")
<u>210-8*</u>	<u>210M-2*</u>	AT2-5	1-3/4"	84.1 mm (3.31")	49.2 mm (1.94")	77.8 mm (3.06")	165 mm (6.50")	3/4"	206 mm (8.13")	82.6m (3.25")	9.5 mm (.38")	123 mm (4.84")
210-8-2	<u>210M-2-2*</u>	AT2-5	1-3/4"	84.1 mm (3.31")	49.2 mm (1.94")	77.8 mm (3.06")	165 mm (6.50")	3/4"	206 mm (8.13")	82.6m (3.25")	9.5 mm (.38")	123 mm (4.84")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### COMPONENTS

ITEM #	PART #	DESCRIPTION
1	S1-3	Screw, 10-24 x 5/8" SEMS (2)
2	NSS	Screw, 10-24 x 1-3/8" SEMS (3)
3	NSS	Cover
4	S2-17	Spring, air valve
5	NSS	Screw, 8-32 x 5/16" SEMS (4)
6	P2-13	Plate, backup
7	D1-12	Diaphragm
	D1-12-2	Diaphragm, silicone
8	NSS	Plate, divider
9	G1-20	Gasket, plate to body
10	S1-12	Screw, 8-32 x 5/16" SEMS (4)
11	NSS	Spacer
12	R1-17	Ring, air valve
13	BV1-12	Valve ass'y
14	NSS	Body ass'y, 77.8 mm (3.06") Air Horn
15	G1-21	Gasket, throttle body to mixer
16	S1-19	Screw, 12-24 x 5/8" SEMS (4)
17	S2-16	Spring, idle screw
18	NSS	Idle screw
19	AS3-21	Valve & spacer ass'y
	NSS	Dash Pot Ass'y
20	A210-DP-2	Dash Pot Ass'y, Silicone
21	NSS	Plug, 1/8 NPT
22	NSS	(Refer to Throttle body charts)
23	NSS	Pin, throttle stop (5)
24	S5-2	Throttle shaft, 7.9 mm (0.31") dia.
	S5-3	Throttle shaft, 9.5 mm (0.38") dia.
	NSS	Butterfly, 38.1 mm (1.50")
25	NSS	Butterfly, 44.5 mm (1.75")
	NSS	Butterfly, 50.8 mm (2.00")
26	S1-12	Screw, 8-32 x 5/16" SEMS (2)
27	NSS	Bearing, Oilite, 7.9 mm (0.31") I.D. (2)
28	NSS	Bearing, Oilite, 9.5 mm (0.38") I.D. (2)
29	B2-7	Bearing, needle, 7.9 mm (0.31") I.D. (2), opt.
30	NSS	Seal, 7.9 mm (0.31") shaft (2)
31	NSS	Seal, 9.5 mm (0.38") shaft (2)
	NSS	Seal, internal, 9.5 mm (0.38") I.D., optional
32	NSS	Ring, seal retainer, 7.9 mm (0.31") shaft (2)
33	NSS	Ring, seal retainer, 9.5 mm (0.38") shaft (2)
34	AL1-8-2	Throttle stop ass'y, 7.9 mm (0.31")
	AL1-10	Throttle stop ass'y, 9.5 mm (0.38")
35	NSS	Throttle stop lever
36	NSS	Spring, stop screw
37	NSS	Stop screw, 10-32 x 3/4"
	S1-18	Pin screw, throttle stop
	AL1-7-1	Throttle lever, w/ S1-17, L1-7-1
	AL1-9-1	Throttle lever, w/ S1-26, L1-9-1
	NSS	Throttle Lever 58.7 mm (2.31") long, 0.562" mtg ID
38	NSS	Throttle lever
39	NSS	Screw, 10-24 x 5/8"
	NSS	Screw, 12-24 x 5/8"
40	G1-19	Gasket, 38.1 mm (1.50") flange
	G1-23	Gasket, 44.5 mm (1.75") flange
	G1-24	Gasket, 50.8 mm (2.00") flange



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



## ASSEMBLIES & ACCESSORIES

### MIXERS

PART #	DESCRIPTION
<u>210M-2*</u>	77.8 mm (3.06") Air Horn
<u>210M-2-2*</u>	77.8 mm (3.06") Air Horn, w/ silicone

### THROTTLE BODIES

PART #	DESCRIPTION
AT2-4-2	Standard, 38.1 mm (1.50") flange, 7.9 mm (0.31") shaft dia.
AT2-5	Standard, 44.5 mm (1.75") flange, 9.5 mm (0.38") shaft dia.
<u>AT2-6*</u>	Standard, 50.8 mm (2.00") flange, 9.5 mm (0.38") shaft dia., center bore
<u>AT2-6-3*</u>	50.8 mm (2.00") flange, 9.5 mm (0.38") shaft dia., center bore, w/ needle bearings & internal seal
<u>AT2-11-1*</u>	Standard, 31.8 mm (1.25") flange, 11.1 mm (0.44") shaft dia.
<u>AT2-12*</u>	Standard, 38.1 mm (1.50") flange, 11.1 mm (0.44") shaft dia.
<u>AT2-13-1*</u>	Standard, Holley, 11.1 mm (0.44") shaft dia. Holley 11.1 mm (0.44")

### THROTTLE SHAFTS

PART #	DESCRIPTION
S5-2	7.9 mm (0.31") dia., 127 mm (5.00") long, standard on AT2-4, AT2-5, AT2-6
S5-3	7.9 mm (0.31") dia., 138 mm (5.44") long, standard on AT2-5, AT2-6
S5-7	7.9 mm (0.31") dia., 133 mm (5.25") long
S5-11	7.9 mm (0.31") dia., 156 mm (6.13") long

### DASHPOT ASSEMBLIES

PART #	DESCRIPTION
<u>A210-DP*</u>	For Model 210 Mixer
A210-DP-2	For Model 210 Mixer, w/silicone diaphragm

### SPACERS

PART #	DESCRIPTION
AS3-45	Spacer ass'y, 20.6 mm (0.81") high

### GASKETS

PART #	DESCRIPTION
G1-47	Gasket, Flange 2B Holley T2-13

### LEVERS

PART #	DESCRIPTION
AL1-7-1	Ass'y, 44.5 mm (1.75") long (std. on AT2-3, AT2-4-1, AT2-4-3, AT2-16-1)
<u>AL1-7-2*</u>	Ass'y, w/ 6.4 mm (0.25") ball stud, 44.5 mm (1.75") long
AL1-7-3	Ass'y, 33.3 mm (1.31") long
AL1-7-4	Ass'y, w/ swivel, 44.5 mm (1.75") long
AL1-8-2	Stop ass'y, 7.9 mm (0.31") mounting I.D., 19.1 mm (0.75") long
AL1-9-1	58.7 mm (2.31") long (standard on AT2-5, AT2-6)
<u>AL1-9-1A*</u>	58.7 mm (2.31") long, 0.562" mounting ID
AL1-10	Lever stop ass'y, 9.5 mm (0.38") mounting I.D., 22.2 mm (0.88") long, standard on AT2-5, AT2-6
AL1-33	Ass'y, shaft clamp, 7.9 mm (0.31") mounting I.D., 49.2 mm (1.94") long

#### NOTES:

AL1-7-1 through AL1-7-4 levers used w/ AL1-8 lever stop.

AL1-9 levers used w/ AL1-10 lever stop.

See Small Parts & Accessories section of catalog for other optional levers.

### ADAPTERS

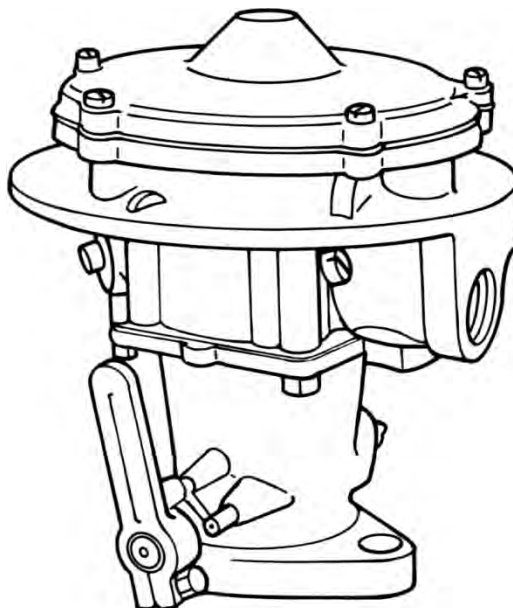
PART #	DESCRIPTION
A3-28	200M to 3-1/16" hose
<u>A3-30*</u>	200M to 2-5/8" hose
<u>AA3-19*</u>	225M to Holley 2B throttle body
<u>AA3-32-2*</u>	200M to CA100 throttle body
<u>AA3-47-2*</u>	200M to CA425 throttle body
<u>AA3-48-2*</u>	200M to CA425 hose elbow

### RETURN SPRINGS

PART #	DESCRIPTION
AS2-50-2	7.9 mm (0.31") throttle return
AS2-50-3	9.5 mm (0.38") throttle return



## Model 225



### DESCRIPTION

The Model 225 carburetor is a single-diaphragm air valve carburetor/mixer. It offers a down-draft air inlet that can be used for remote air filtration or open-element type air filters. This unit is available for LPG Vapor or Natural Gas applications with airflow requirements up to 380 CFM (179.3 L/s).

The Model 225 is also available for feedback applications with the 'FB' designation. Note: All DG model mixers reduce airflow by 30%.

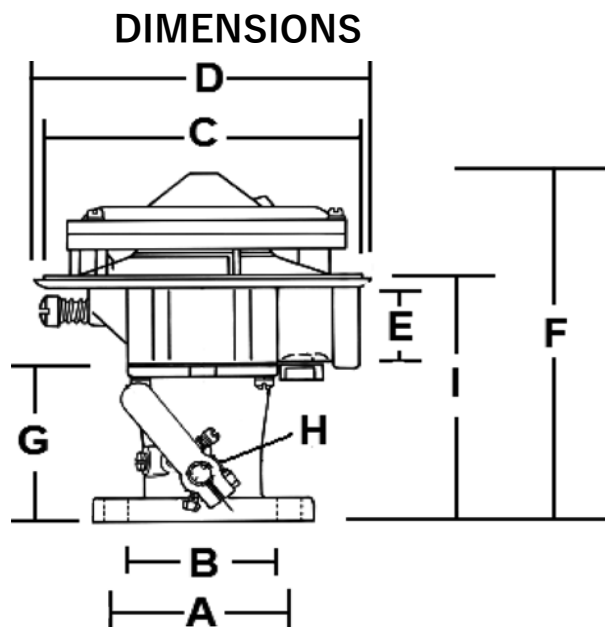
Two separate air valve vacuum supplies are available with this mixer. Additional low speed mixture control can be obtained to lean air/fuel mixtures with optional ring spacers/shims. Check the Accessories section for more information.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure .....	-1.5" w.c. (-0.37 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	205 hp (153.0 kW) @ 329 CFM (155 L/s) and 1.5" Hg manifold depression 237 hp (176.7 kW) @ 380 CFM (179.3 L/s) and 2.0" Hg manifold depression

## Model 225

### Carburetors & Mixers



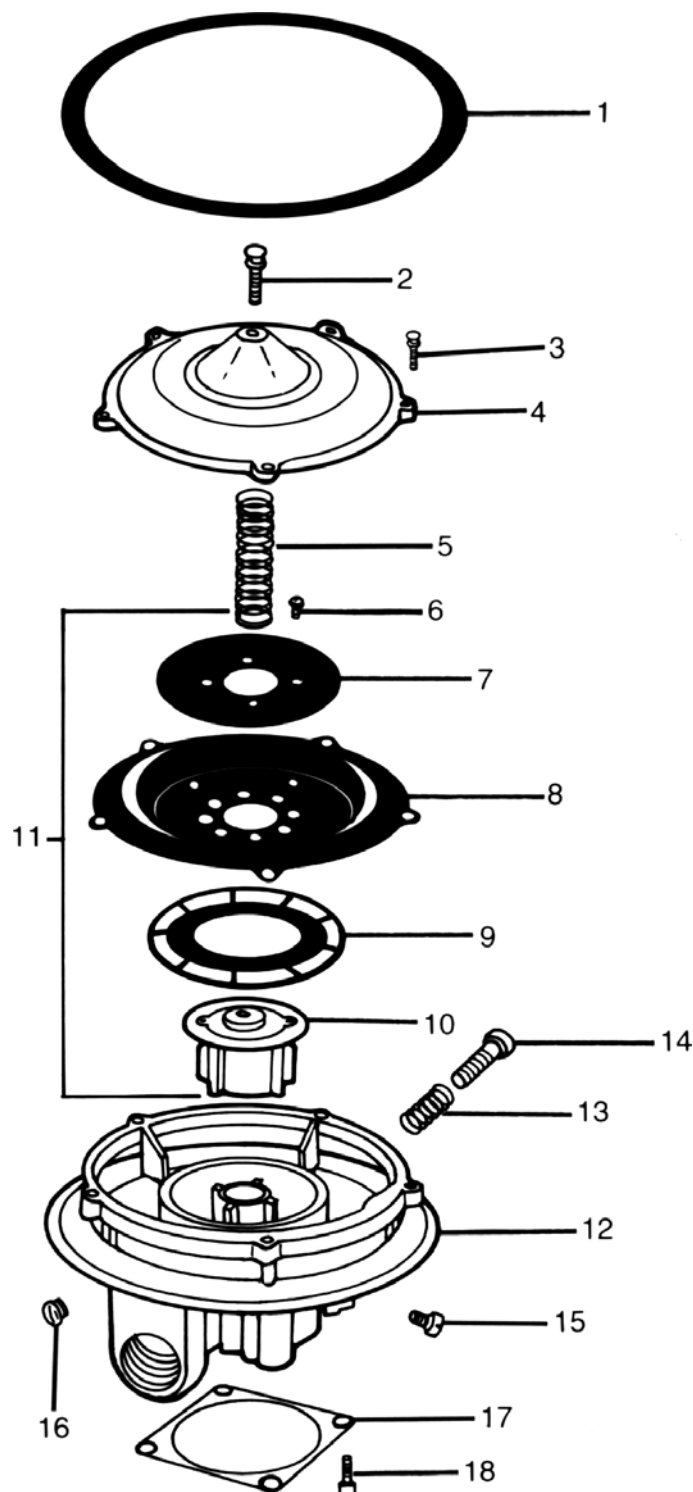
DIMENSIONS												
	A	B	C	D	E	F	G	H	I			
CARB	THRTL. BODY	SAE FLANGE	CTR. TO CTR. BOLT SPACING	BORE	MIXER AIR HORN DIA.	OVRAL. WIDTH	NPT INLET	OVRAL. HEIGHT	THRTL. BODY HEIGHT	THRTL. SHAFT DIA.	FLANG. TO CTR. OF AIR HORN	
225-94	<u>AT2-6*</u>	2"	60.45mm (2.38")	55.6mm (2.188")	N/A	159 mm (6.250")	3/4"	184 mm (7.250")	69.9mm (2.750")	7.9 mm (.313")	114 mm (4.500")	
225-94-2	<u>AT2-6*</u>	2"	60.45mm (2.38")	55.6mm (2.188")	148 mm (1.688")	159 mm (6.250")	3/4"	191 mm (7.500")	82.6mm (3.250")	9.5 mm (.375")	127 mm (5.000")	
CA225-94	<u>AT2-6*</u>	2"	60.45mm (2.38")	55.6mm (2.188")	148 mm (1.688")	159 mm (6.250")	3/4"	191 mm (7.500")	82.6mm (3.250")	9.5 mm (.375")	127 mm (5.000")	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## COMPONENTS

ITEM #	PART #	DESCRIPTION
1	NSS	Gasket, mixer to Air Horn
2	NSS	Screw, 1/4" -20 x 1" SEMS
3	S1-3	Screw, 10 -24 x 5/8" SEMS (5)
4	NSS	Cover, air valve
5	S2-17	Spring, air valve
6	S1-12	Screw, 8-32 x 5/16" SEMS (4)
7	P2-21	Plate, backup
8	D1-16-1	Diaphragm
	D1-16-2	Diaphragm, Silicone
9	R1-17	Ring, air valve
10	BV1-12	Air-gas valve ass'y, LPG
	DV1-12	Air-gas valve ass'y, NG
11	AV1-12	Air-gas valve ass'y, complete w/ diaphragm, LPG
	CV1-12	Air-gas valve ass'y, complete w/ diaphragm, NG
12	NSS	Body ass'y
13	S2-16	Spring, idle screw
14	NSS	Idle screw
15	NSS	Screw, 1/4" -28 x 5/16" (3)
16	NSS	Plug, 1/8 NPT, brass
17	G1-21	Gasket, throttle body to mixer
18	S1-19	Screw, 12-24 x 5/8" SEMS

NSS = Not Serviced Separately



## ASSEMBLIES & ACCESSORIES

### MIXERS

PART #	DESCRIPTION
225M-2	For NG, w/silicone diaphragm
<u>FB225M-2*</u>	For feedback, w/ silicone diaphragm
<u>FB225M-F6T49*</u>	Mixer assembly, Model 225 Tamper Rest For Ford QVM
CA225M	For LPG
CA225M-2	Use CA225M-3-2 Instead
<u>FB225M-2TP*</u>	Feedback Mix w/Sil Diaphragm Tamper Resistant

### THROTTLE BODIES (ONE BARREL)

PART #	DESCRIPTION
AT2-4-2	Standard, 38.1 mm (1.50") flange, 7.9 mm (0.31") shaft dia.
AT2-5	Standard, 44.5 mm (1.75") flange, 9.5 mm (0.38") shaft dia.
<u>AT2-6*</u>	Standard, 50.8 mm (2.00") flange, 9.5 mm (0.38") shaft dia., center bore
<u>AT2-6-3*</u>	50.8 mm (2.00") flange, 9.5 mm (0.38") shaft dia., center bore, w/ needle bearings & internal seal

\* All throttle bodies are offset 8.8 mm (0.031") unless otherwise noted.

### THROTTLE BODIES (TWO BARREL)

PART #	DESCRIPTION
<u>AB1-24-1*</u>	Body Assy 2B Throttle

### ACCESSORIES

PART #	DESCRIPTION
<u>VCS*</u>	Valve, Solenoid Vacuum Lift

### ADAPTERS

PART #	DESCRIPTION
<u>A2-55*</u>	Adapter, Air Cleaner Base 225M

### ADAPTERS

PART #	DESCRIPTION
A2-2	Air Horn, 130 mm (5.13") dia.
<u>A2-3*</u>	Air Horn, 66.7 mm (2.63") dia.
<u>A2-6*</u>	Air Horn, 77.8 mm (3.06") dia.
<u>AA3-19*</u>	200M to Holley 2B throttle body
A3-28	200M to 3-1/16" hose
<u>A3-30*</u>	200M to 2-5/8" hose
<u>AA3-32-2*</u>	200M to CA100 throttle body
<u>AA3-47-2*</u>	200M to CA425 throttle body
<u>AA3-48-2*</u>	200M to CA425 hose elbow
<u>A3-124-2*</u>	Adapter 125 Solex TB Modified

## ASSEMBLIES & ACCESSORIES (CONTINUED)

LEVERS	
PART #	DESCRIPTION
AL1-7-1	Ass'y 44.5 mm (1.75") long (std. on AT2-3, AT2-4-1, AT2 4-3, AT2-16-1)
<u>AL1-7-2*</u>	Ass'y, w/ 64 mm (0.25") ball stud, 44.5 mm (1.75") long
AL1-7-3	Ass'y 33.3 mm (1.31") long (std. on AT2-1, AT2-2, AT2-23)
AL1-7-4	Ass'y, w/ swivel, 44.5 mm (1.75") long
AL1-8-2	Stop ass'y, 7.9 mm (0.31") mounting I.D., 19.1 mm (0.75") long (std. on AT-3, AT2-4-1, AT2-4-3, AT2-16-1, AT2-23)
AL1-9-1	58.7 mm (2.31") long (standard on AT2-5, AT2-6)
<u>AL1-9-1A*</u>	58.7 mm (2.31") long, 0.562" mounting ID
AL1-9-2	Lever 200 w/Swivel
AL1-10	Lever stop ass'y, 9.5 mm (0.38") mounting I.D., 22.2 mm (0.88") long, standard on AT2-5, AT2-6
AL1-11-1	Lever stop ass'y, 11.1 mm (0.44") mounting I.D., 25.4 mm (1.00") long, standard on AT2-11-1, AT2-12, AT2-13-1, AT2-15
AL1-12-1	77.8 mm (3.06") long
AL1-12-3	58.7 mm (2.31") long, standard on AT2-11-1, AT2-12, AT2-13-1, AT2-15
AL1-27-1	Ass'y, floating 7.9 mm (0.31") mounting I.D., 54.0 mm (2.13") long, w/ AC2-12
AL1-33	Ass'y, shaft clamp, 7.9 mm (0.31") mounting I.D., 49.2mm (1.94") long
<u>AL1-46*</u>	Ass'y, steel shaft clamp, 7.9 mm (0.31") mounting I.D., 47.6 mm (1.88") long

### NOTES:

AL1-7-1 through AL1-7-4 levers used w/ AL1-8 lever stop.

AL1-9 levers used w/ AL1-10 lever stop.

AL1-12 levers used w/ AL1-11 lever stop.

See Accessories section of catalog for other optional levers.

## ASSEMBLIES & ACCESSORIES (CONTINUED)

### AIR-GAS VALVES

PART #	DESCRIPTION
AV1-12	Standard, w/Hydrin diaphragm
AV1-12-2	Standard, w/Silicone diaphragm
AV1-12-3	For 1 & 2 cylinder engines, w/Hydrin diaphragm & ball check ass'y
<u>AV1-12-3-2*</u>	For 1 & 2 cylinder engines, w/Silicone diaphragm & ball check ass'y
AV1-12-6	Rich, w/Hydrin diaphragm
AV1-1245	Standard feedback, w/Hydrin diaphragm
AV1-1245-2	Standard feedback, w/Silicone diaphragm
<u>DG-AV1-12*</u>	For digester gas (550-750 BTU), w/Hydrin diaphragm
DG-AV1-12-2	For digester gas (550-750 BTU), w/Silicone diaphragm
LH-AV1-12-2	For low heat gas (750-950 BTU), w/Silicone diaphragm
CV1-12	For natural gas, w/Hydrin diaphragm
CV1-12-2	For natural gas, w/Silicone diaphragm

### RETURN SPRINGS

PART #	DESCRIPTION
AS2-50-2	7.9 mm (0.31") throttle return
AS2-50-3	9.5 mm (0.38") throttle return
AS2-50-4	11.1 mm (0.44") throttle return

Note: All DG model mixers reduce airflow by 30%.

### SPACERS

PART #	DESCRIPTION
AS3-45	Spacer ass'y, 20.6 mm (0.81") high

### RING SPACERS

PART #	DESCRIPTION
<u>R1-30*</u>	Ring, air valve spacer, for AV1-12 (to lean mixture)

### AIR CLEANERS

PART #	DESCRIPTION
<u>AF1-17-2*</u>	Offset, 260 L/s (550 cfm), 356 mm (14.00") O.D., 106 mm (4.19") high

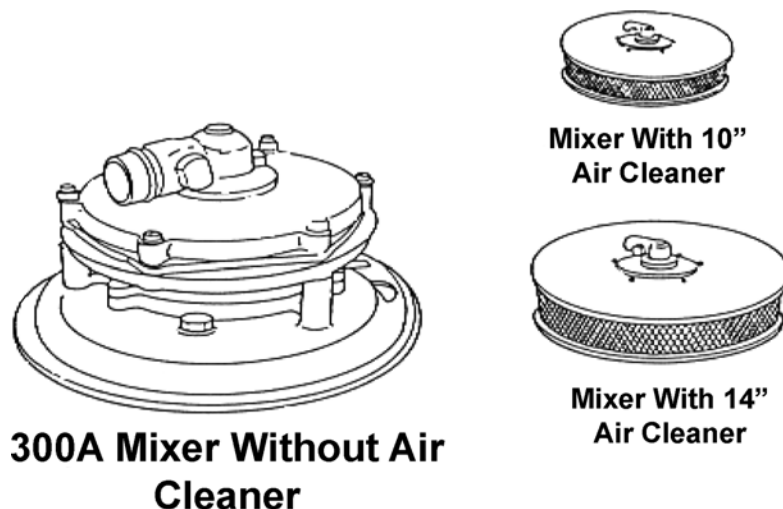
### GASKETS

PART #	DESCRIPTION
<u>G1-51*</u>	Gasket, H.L. Governor for AA3-19

### BEARING, T/B SHAFT

PART #	DESCRIPTION
<u>B2-14*</u>	Bearing, T/B Shaft

## Model 300A



### DESCRIPTION

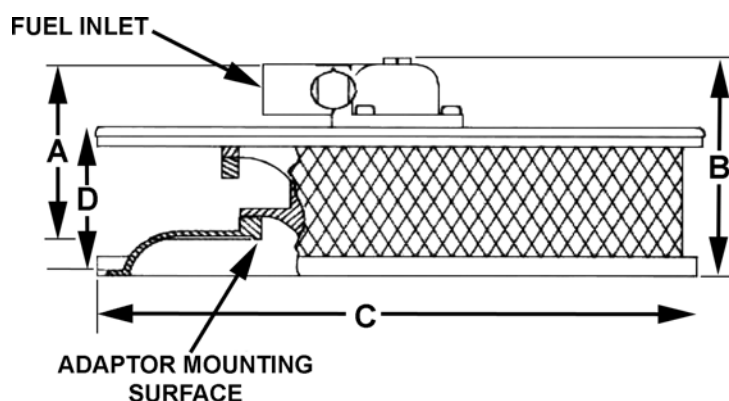
The Model 300A mixer is a single-diaphragm air valve for applications. It offers a down-draft air inlet that can be used for remote air filtration or open-element type air filters. This unit is available for LPG Vapor and Natural Gas applications with airflow requirements up to 348 CFM (164 L/s) or 432 CFM (204 L/s) depending on the part number. The 300A has numerous adapters to allow the installer to fit the 300A into most under-hood vehicle applications.

The Model 300A is also available for feedback applications with the 'FB' designation. The 300A can also be equipped with a cam mechanism to allow the air valve to be raised to its full-open position to minimize any restriction in the base vehicle air stream. Optional air cleaner assemblies are also available for engines which require higher CFM airflow.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/(kW) Rating(1 & 20).....	217 hp (161.8 kW) @ 348 CFM (164 L/s) and 1.5" Hg manifold depression
HP/(kW) Rating (50 & 70).....	270 hp (201.3 kW) @ 432 CFM (204 L/s) and 1.5" Hg manifold depression
Certification .....	UL (AU2317), Inquire for specific ECE approval

## DIMENSIONS



MIXER	A MOUNTING SURFACE TO TOP OF FUEL INLET	B OVERALL HEIGHT	C MIXER ONLY OVERALL WIDTH	D AIR CLEANER HEIGHT	GAS VALVE	DIAPHRAGM (B- BLACK HYDRIN S-SILICONE)	BODEN CABLE INCLUDED	CAM
<u>CA300A-M-2*</u>	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	V2-11	S	Y	Y
CA300A-M-3	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	V2-11	B	N	Y
<u>CA300A-M-3-2*</u>	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	V2-11	S	N	Y
<u>CA300A-M-4-2*</u>	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	V2-11	S	N	N
CA300AM-50-2	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	V2-39	S	Y	Y
CA300AM-50-3	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	V2-39	S	N	Y
CA300AM-50-4	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	V2-39	S	N	N
<u>FB300A-M-2*</u>	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	<u>V2-49*</u>	S	Y	Y
<u>FB300A-M-4-2*</u>	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	<u>V2-49*</u>	S	N	N
<u>FB300AM-50-2*</u>	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	<u>V2-50*</u>	S	Y	Y
<u>FB300AM-50-4*</u>	88.9 mm (3.5")	104.7 mm (4.125")	206.3 mm (8.125")	69.8 mm (2.75")	<u>V2-50*</u>	S	Y	N

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



Model 300A

Carburetors & Mixers



## COMPONENTS - MODEL 300A 1 AND 50

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# Model 300A

## Carburetors & Mixers

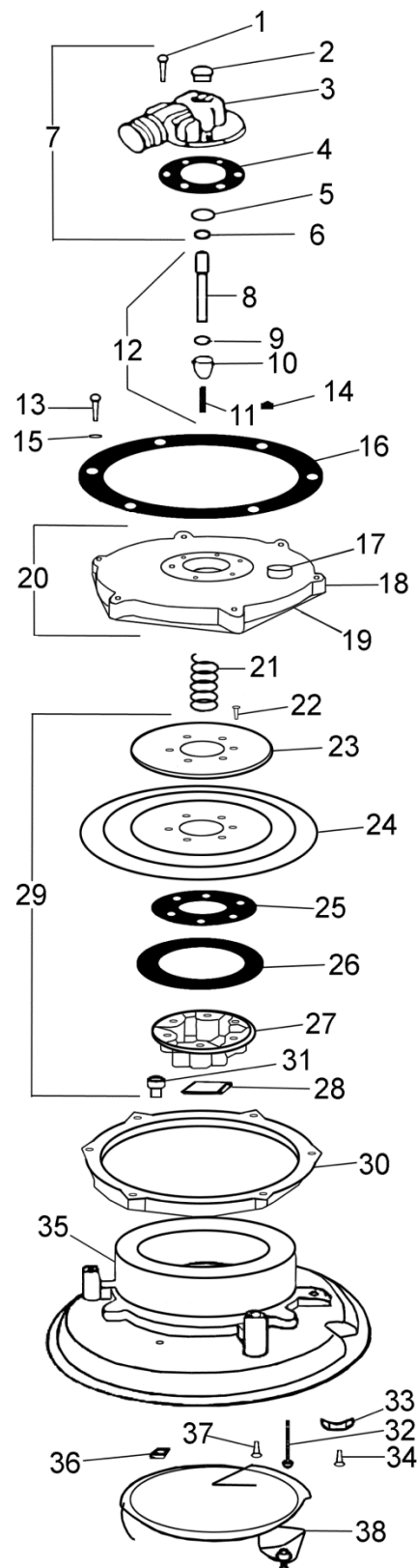


ITEM	PART #	DESCRIPTION
1	S1-3	† Screw, 10-24 x 5/8" SEMS (3)
2	NSS	Plug, idle adjustment
3	NSS	Elbow with power adjustment: E1-4, V2-9, W1-12
4	NSS	*† Gasket, gas elbow
5	NSS	*† Ring, seal retainer
6	NSS	*† Seal, idle screw
7	NSS	Elbow ass'y, complete: P3-2, AE1-4, R1-9, S3-3
8	NSS	Screw, idle adjustment
9	NSS	† Seat, gas valve
10	NSS	Valve Gas Mixer, 300A Series
10	NSS	Valve Gas Mixer FB300A
10	NSS	Valve Gas Mixer FB300A
11	NSS	Spring, gas valve
12	NSS	† Gas valve ass'y, complete
12	NSS	Gas valve ass'y, complete
13	NSS	† Screw 10-24 x 1" (3)
14	NSS	† Nut, dome 10-24 (3)
15	NSS	† Washer, No.10 light flat (6)
16	NSS	*† Gasket, filter cover
17	NSS	† Rivet, vent valve
18	NSS	† Valve cover vent
19	NSS	Cover, diaphragm
20	NSS	Cover ass'y., diaphragm with vent valve
20	NSS	† Cover ass'y., diaphragm with vent valve
21	NSS	† Spring, air valve
22	S1-12	Screw, 8-32 x 5/16" SEMS (6)
23	NSS	Plate, diaphragm backup
24	NSS	* Diaphragm, air valve
24	NSS	* Diaphragm, air valve, silicone
25	NSS	* Gasket, air valve
26	NSS	Ring, air valve
27	NSS	Valve, air metering: V1-10, L1-3, B3-24
28	NSS	* Lock, nylon idle adjustment
29	NSS	† Air valve ass'y, w/diaphragm
29	NSS	† Air valve Assy, Silicone, w/diaphragm
30	NSS	Ring, diaphragm support
31	NSS	Screw, 1/4"-20 x 5/8" hex head SEMS (3)
32	NSS	† Screw, 10-24 x 1-1/2" SEMS (3)
33	NSS	Clamp, Boden wire
34	NSS	Screw, 10-32 x 5/8" hex head
35	NSS	Base ass'y, complete
36	NSS	Nut, square, 1/4"-20
37	NSS	Screw, 1/4"x 5/16" (plug)
38	AC2-2	Cam ass'y: C2-2, W1-2, S1-7

### NSS = NOT SERVICED SEPARATELY

\* Indicates components of minor repair kit.

† Indicates components of major repair kit.



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model 300A

Carburetors & Mixers



## COMPONENTS - MODEL 300A 20 AND 70

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# Model 300A

## Carburetors & Mixers

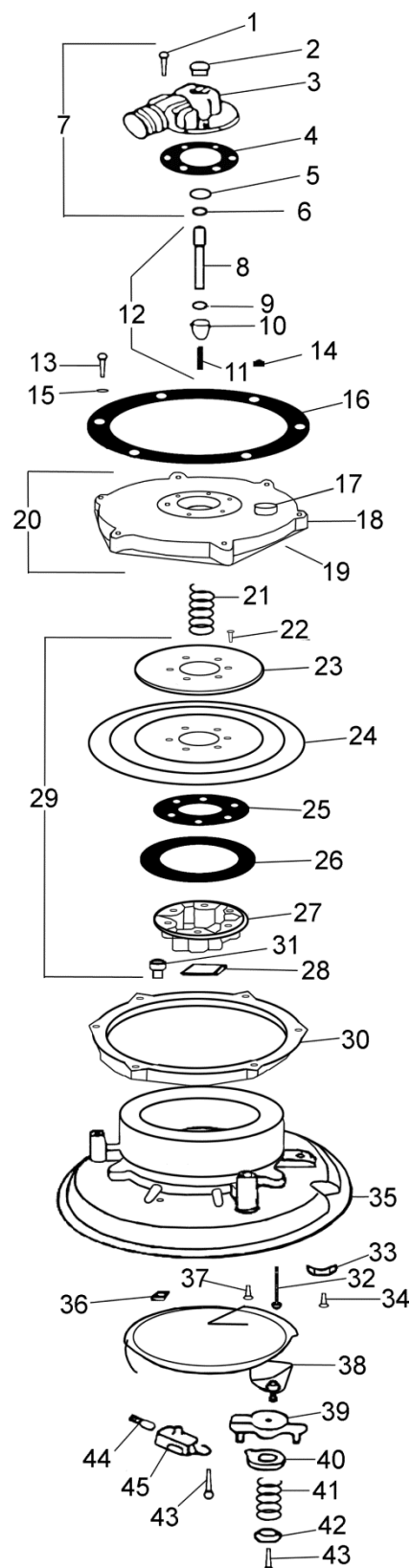


Item #	Part #	Description
1	S1-3	† Screw, 10-24 x 5/8" SEMS (3)
2	NSS	Plug, idle adjustment
3	NSS	Elbow with power adjustment
4	NSS	*† Gasket, gas elbow
5	NSS	*† Ring, seal retainer
6	NSS	*† Seal, idle screw
7	NSS	Elbow ass'y, complete: P3-2, AE1-4, R1-9, S3-3
8	NSS	Screw, idle adjustment
9	NSS	† Seat, gas valve
10	NSS	Valve, gas metering
11	NSS	Spring, gas valve
12	NSS	† Gas valve ass'y, complete
13	NSS	† Screw 10-24 x 1" (3)
14	NSS	† Nut, dome 10-24 (3)
15	NSS	† Washer, No.10 light flat (6)
16	NSS	*† Gasket, filter cover
17	NSS	† Rivet, vent valve
18	NSS	† Valve cover vent
19	NSS	Cover, diaphragm
20	NSS	Cover ass'y, diaphragm with vent valve
21	NSS	† Spring, air valve
22	S1-12	Screw, 8-32 x 5/16" SEMS (6)
23	NSS	Plate, diaphragm backup
24	NSS	* Diaphragm, air valve
25	NSS	* Diaphragm, air valve, silicone
26	NSS	* Gasket, air valve
27	NSS	Ring, air valve
28	NSS	Valve, air metering: V1-10, L1-3, B3-24
29	NSS	* Lock, nylon idle adjustment
30	NSS	AV1-10-1† Air valve ass'y, complete with diaphragm
31	NSS	AV1-10-2† Air valve ass'y, complete with diaphragm
32	NSS	Ring, diaphragm support
33	NSS	Screw, 1/4"-20 x 5/8" hex head SEMS (3)
34	NSS	† Screw, 10-24 x 1-1/2" SEMS (3)
35	NSS	Clamp, Boden wire
36	NSS	Screw, 10-32 x 5/8" hex head
37	NSS	Base ass'y, complete
38	AC2-2	Nut, square, 1/4"-20
39	NSS	Screw, 1/4"x 5/16" (plug)
40	NSS	Cam ass'y: C2-2, W1-2, S1-7
41	NSS	Body vacuum valve: B1-41, P1-20
42	NSS	Valve, rotary
43	NSS	Spring, vacuum valve
44	NSS	Cap, vacuum valve
45	NSS	Screw, 4-40 x 3/4" (3)
46	NSS	Connector, wire (2)
47	NSS	Switch, gasoline

### NSS = NOT SERVICED SEPARATELY

\* Indicates components of minor repair kit.

† Indicates components of major repair kit.



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES &amp; ACCESSORIES

## ADAPTERS

PART #	DESCRIPTION
<u>A1-4*</u>	Adapter, CA300A, mixer to 2-5/8" Air Horn, center stud
<u>A1-50-2*</u>	Adapter, CA300A
<u>A1-6*</u>	Adapter, CA300A, mixer to 3-1/16" Air Horn, center stud
A1-63	Adapter, CA300 Machined
<u>AA1-40*</u>	Adapter, CA300 2 5/8" w/ Clamp Nuts
<u>AA1-50-5*</u>	Adapter, Assy CA300/CA425
<u>AA3-75*</u>	Adapter, CA300A & CA425M
<u>A3-96*</u>	Adapter, CA300 Holley 4B
<u>A1-16-1*</u>	Adapter, CA300, 5-1/8" Center Stud
A1-16-2	Adapter, CA300, 1/2" Shorter than A1-16-1
<u>A1-54*</u>	Adapter, 3-1/8" Air Horn
<u>A1-55*</u>	Adapter, 2-5/8" Air Horn
<u>A1-56*</u>	Adapter, 2- 5/16" Air Horn
<u>A1-62*</u>	Adapter, 5-1/8" Air Horn
AA1-57	Adapter, Ass'y Hood
<u>AA1-67*</u>	Adapter, Ass'y 175A to Hose

## CABLES

PART #	DESCRIPTION
C2-32	Cable, Boden Wire 300A Series
C2-1	Clamp, Boden Cable

## FILTERS

PART #	DESCRIPTION
<u>AF1-1*</u>	Filter Assy (C1-4 Cover & F1-1 Filter) 350 CFM
<u>F1-1*</u>	Filter Element, CA300A, 350 CFM
<u>C1-4*</u>	Cover, CA300A 350 CFM
<u>C1-40*</u>	Cover, Air Filter, 500 CFM
<u>F1-9*</u>	Air Filter Element, 500 CFM

## ADAPTERS

PART #	DESCRIPTION
<u>A2-73*</u>	Adapt 1/2" Spacer Adapter 5" ID
<u>A1-50-2*</u>	Adapter, CA300A

## MIXERS

PART #	DESCRIPTION
<u>CA300A-M-2*</u>	Mixer only, w/O Filter w/ Boden Wire, Silicone
CA300A-M-3	Mixer, w/O Fitting, Filter, Cable,
<u>CA300A-M-3-2*</u>	Mixer, Silicone, w/O cable, & Filter Fitting.
<u>CA300A-M-4-2*</u>	Mixer w/O C2-32, AC2-2 Silicone
CA300AM-50-2	Mixer only, w/O Filter, w/ AC2-2
CA300AM-50-3	Mixer only, w/O Filter, C2-32
CA300AM-50-4	Mixer Ass'y, w/O Cable & Cam
<u>FB300A-M-2*</u>	Mixer Ass'y, w/ FB. Air Valve
<u>FB300A-M-4-2*</u>	Feedback Mixer w/ C2-32
<u>FB300AM-50-2*</u>	Mixer Ass'y Feedback, w/O Filter
<u>FB300AM-50-4*</u>	Mixer Ass'y, w/O Filter, & Cam Cable

## AIR VALVE ASSY

PART #	DESCRIPTION
<u>AV2-50*</u>	Gas Valve Ass'y, Complete

## REPAIR KITS

PART #	DESCRIPTION
RK300MA-1/20	Major Repair Kit for Standard or -20 models with Hydrin Diaphragm
RK300MA-1/20-2	Major Repair Kit for Standard or -20 models with Silicone Diaphragm
RK300MA-50/70-2	Major Repair Kit for -50 or -70 models with Silicone Diaphragm
<u>RK300MI-1/20-2*</u>	Minor Repair Kit Minor for -20 models with Silicone Diaphragm
RK300MI-50/70-2	Minor Repair Kit for -50 or -70 models with Silicone Diaphragm

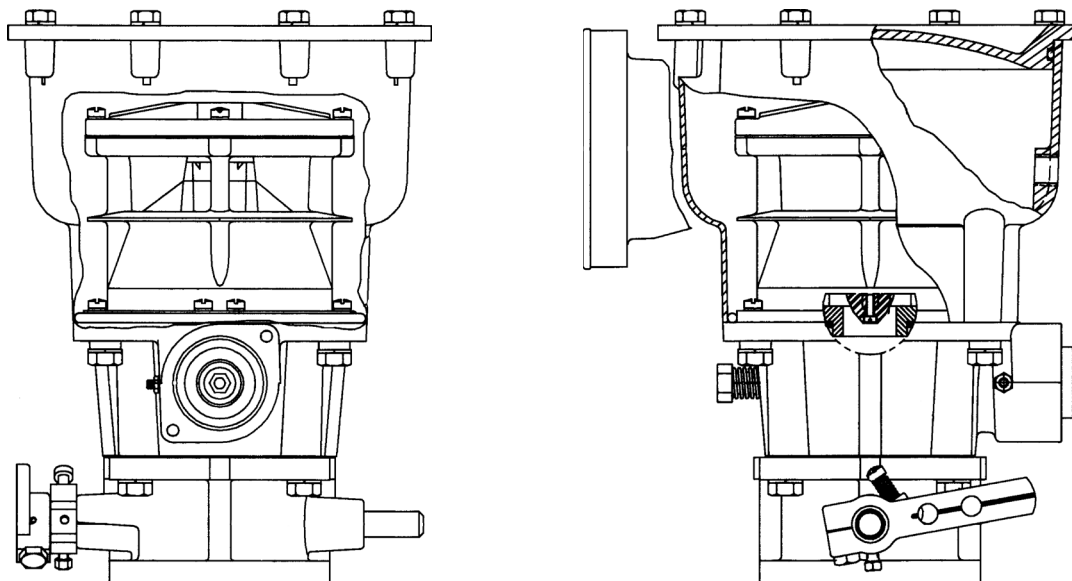
## POWER VALVES

PART #	DESCRIPTION
V2-9	Valve, Power Adjustment

## GASKETS

PART #	DESCRIPTION
G1-130	Gasket, Flange

## Model 400VF



### DESCRIPTION

The Model 400VF Mixer is a concentric flow type air valve carburetor with a precision gas metering valve attached to the air valve for applications with airflow requirements up to 500 CFM (236.0 L/s). The air valve and gas valve motion is linear in relation to the volumetric flow. The air/fuel ratio is controlled by the adjustable power valve, the shape of the gas metering valve and the pressure from the gas regulator. The most suitable gas valve and matching jet is selected from several sizes best suited for various fuels such as LPG Vapor, Natural Gas and Landfill Gas. Gas valves are shaped to provide A/F versus flow characteristics defined by each customer.

### SPECIFICATIONS

#### Fuel Type

LPG Vapor .....	90% + Propane
Natural Gas .....	85% + Methane
Digester Gas .....	56-72% Methane
Landfill Gas .....	45-56% Methane
Inlet Pressure .....	+5.0" w.c. (1.24 kPa) over Air Inlet (Idle Setting)
Operating Temperature Range .....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Various: Updraft, downdraft, sidedraft
Diaphragm Material .....	Silicone
HP/kW Rating .....	320 hp (238.6 kW) @ 500 CFM (236.0 L/s) with 2.0" Hg manifold depression using T2-7 throttle body

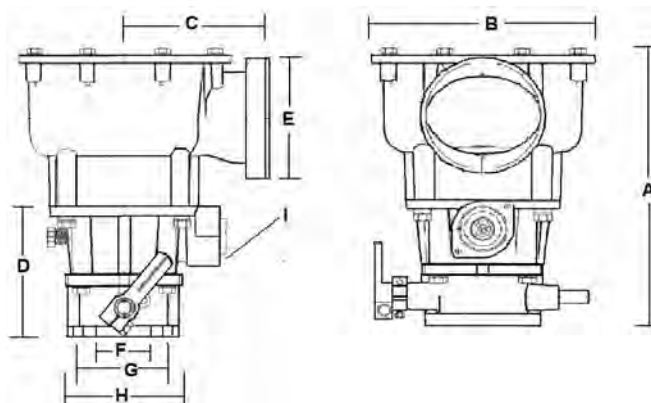
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# Model 400VF

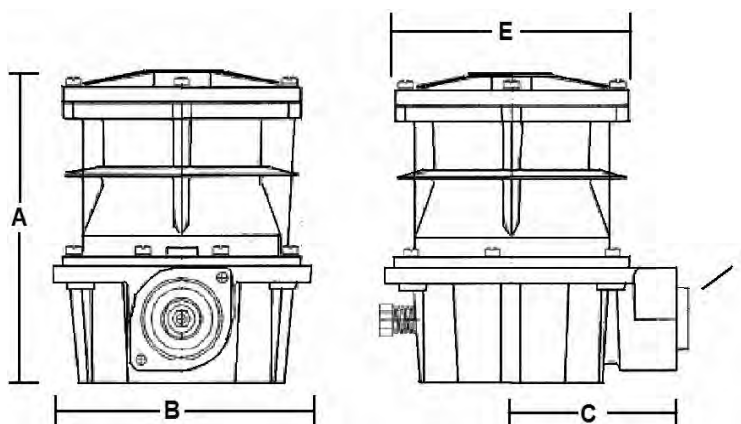
## Carburetors & Mixers



### DIMENSIONS



View A



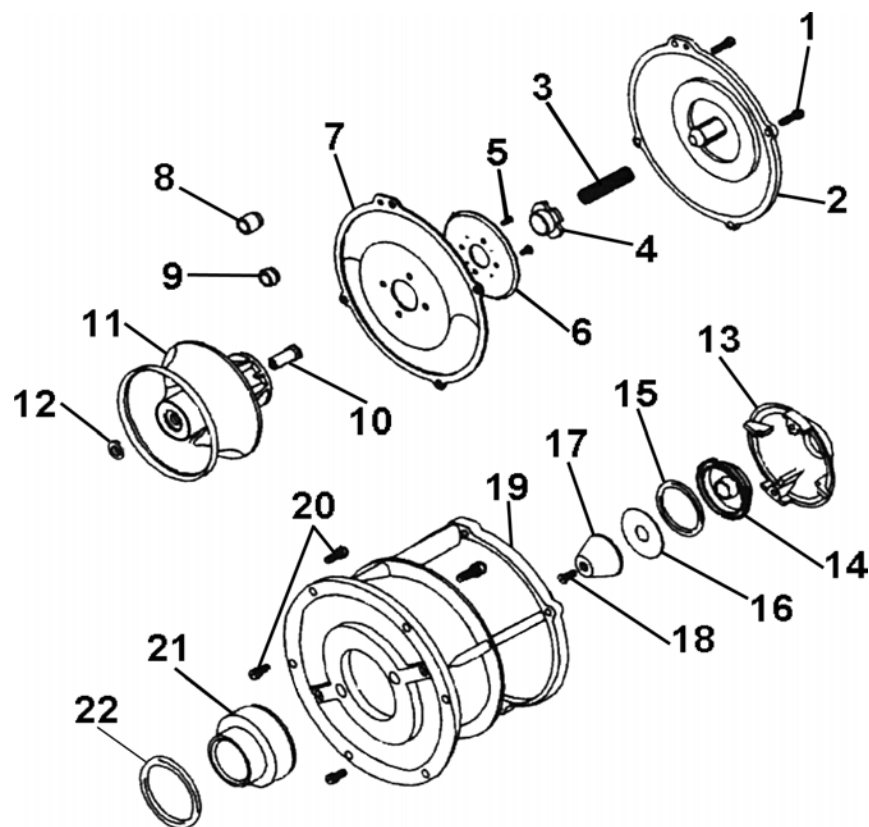
View B

STD. CARB.	AIR VALVE BODY ASSY	GAS VALVE CONV.	GAS BODY ASSY	AIR INLET ASSY	THROAT ASSY	VIEW
NG400VF3X-3-2	AB1-66-3X	CKV2-77	AB1-67	AA2-70	AT2-7-303	A

STD. CARB.	A	B	C	D	E	F	G	H	I
	OVERALL HEIGHT	OVERALL WIDTH	CTR TO INLET	THROTTLE BODY HEIGHT	INLET DIA.	BORE	CTR. TO	FLANGE WIDTH	FUEL INLET NPT
NG400VF3X-3-2	245.8 mm (9.68")	182.8 mm (7.20")	123.9 mm (4.88")	112.0 mm (4.41")	101.6mm (4.0")	68.3 mm (2.69")	72.8 mm (2.87")	95.2 mm (3.75")	31.7 mm (1.25")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## COMPONENTS



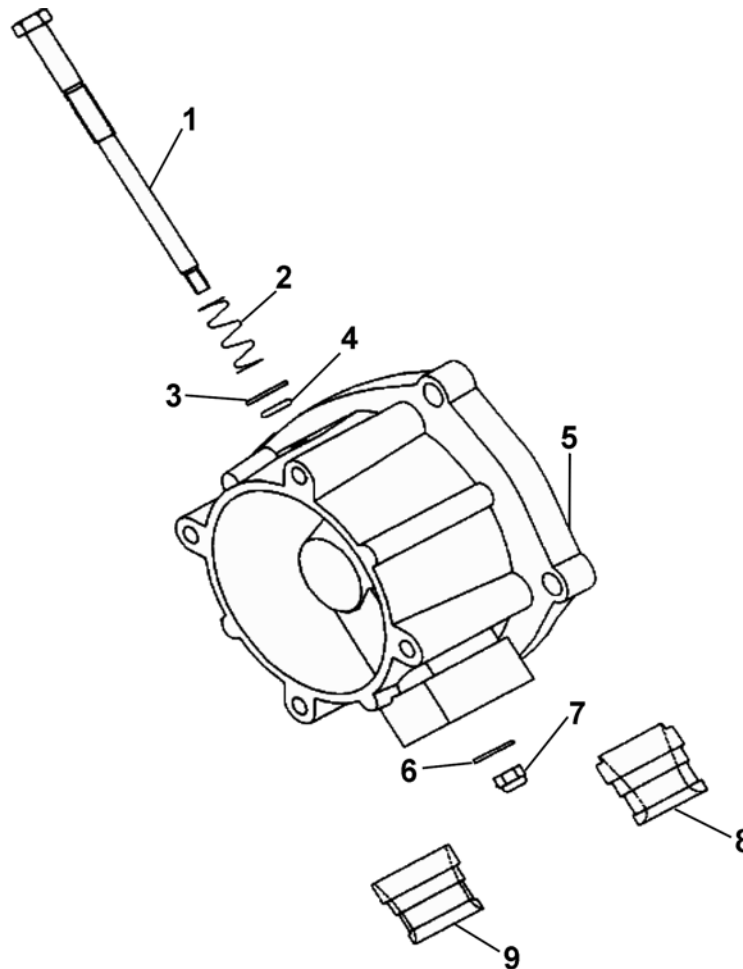
ITEM #	PART #	DESCRIPTION
1	S1-3	Screw
2	NSS	Cover
3	S2-30	Spring, Air Valve
	S2-41	Spring, Air Valve 600 High
4	B3-57	Bushing
5	S1-22	Screw
6	P2-62-2	Plate, Back up Diaphragm 400VF
7	D1-25	Diaphragm
8	S4-39	Updraft Spacer
9	NSS	Sidedraft Spacer
10	NSS	Shaft
11	AB1-66-3U	Air Valve Body, Updraft
	AB1-66-3X	Air Valve Body, Downdraft
12	NSS	O-ring
13	NSS	Jet Cover
14	NSS	Piston
	S3-132	O-ring
15	NSS	O-ring
	NSS	O-ring
	S3-82	O-ring

ITEM #	PART #	DESCRIPTION
16	NSS	Washer
	NSS	Stoich
	V2-78	Gas Valve, ULB
17	NSS	Digester Gas
	NSS	Landfill Gas
	NSS	Valve, Gas Mixer FB Rich
	NSS	Valve, Gas Mixer FB Lean
	V2-122	Valve, Gas 400VF NG ULB
18	NSS	Screw
19	NSS	Body, 400VF
20	NSS	Screw
21	NSS	Jet
22	S3-133	O-ring Nitrile, Natural Gas
	NSS	O-ring Viton Landfill/Digester Gas
Not Shown	S3-103	O-ring, 90° Cover 400VF
	NSS	O-ring, 90° Cover 400VF

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



## COMPONENTS (CONTINUED)



ITEM #	PART #	DESCRIPTION
1	NSS	Power Adjust Screw
2	NSS	Spring
3	NSS	Washer
4	NSS	O-ring
5	NSS	Gas Body
6	NSS	Washer Power Valve
7	NSS	Ny Loc Nut
8	J1-36	Jet Natural Gas & Propane
9	J1-48	Jet Landfill & Digester
Not Shown	NSS	Bearing, Needle AT2-7
Not Shown	NSS	Washer, .394x1.246.051, Almn.
Not Shown	NSS	Washer, .263x1.744.051, Steel

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES & ACCESSORIES

### ACCESSORIES

PART#	DESCRIPTION
<u>AA2-69*</u>	Air Horn, 4.0" Hose
AA2-70	Air Horn, 90 Deg 4.0" Hose

### GAS VALVE/JET KIT

PART#	DESCRIPTION
CKV2-77	(NG) Natural gas, stoichiometric w/J1-45 (also for Propane w/EB converter)
<u>CKV2-78*</u>	(UL) Natural gas, ultralean (l=1.4 to 1.6), w/J1-44
CKV2-79	(DG) Digester gas, (540-640 BTU/ft <sup>3</sup> ), stoichiometric, w/J1-47
<u>CKV2-80*</u>	(LF) Landfill gas, (450-540 BTU/ft <sup>3</sup> ), stoichiometric, w/J1-47
CKV2-88	(FR) Natural gas, throttling feedback, (l=0.85-1.05), w/J1-46
CKV2-89	(FB) Natural gas, enrichment feedback, (l=1.2-1.4), w/J1-45

### GAS JETS

PART#	DESCRIPTION
J1-36	Power Jet, 400VF
J1-44	Jet, Gas 400VF .600 ID
J1-45	Jet, Gas 400VF .750 ID
J1-46	Jet, Gas 400VF, .900ID
J1-47	Jet, Gas 400VF 1.060ID

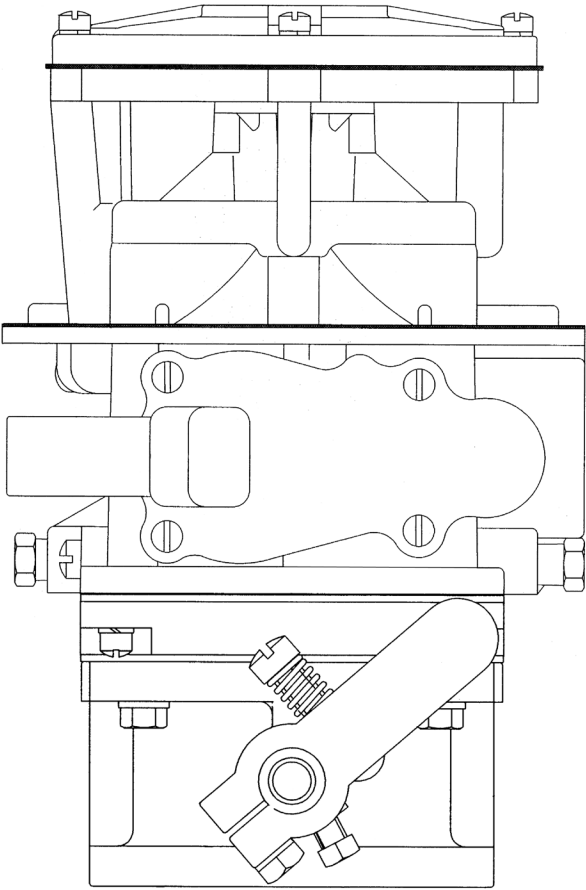
### BUSHINGS

PART#	DESCRIPTION
B3-58	Bushing, Lower A/V 400VF

### JET COVER ASSEMBLY

PART#	DESCRIPTION
BC1-29-3	Assembly, Jet Cover, VF3

Model 425



DESCRIPTION

The Model 425 carburetor is a single-diaphragm air valve carburetor/mixer. It offers a down draft air inlet that can be used for remote air filtration or open-element type air filters. This unit is available for LPG Vapor and Natural Gas for applications requiring up to 460 CFM (217.1 L/s). The Model 425 is also available for feedback applications with the ‘FB’ designation. These FB mixers are available in a tamper resistant configuration, indicated by the “-CT” in the part number.

SPECIFICATIONS

Fuel Type .....	LPG Vapor, Natural Gas
Inlet Pressure .....	+8.0” w.c. (1.99 kPa)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
Diaphragm Material .....	Hydrin (Standard), Silicone (Optional)
HP/kW Rating .....	287 hp (214.0 kW) @ 460 CFM (217.1 L/s) and 1.5” Hg manifold depression 333 hp (248.0 kW) @ 533 CFM (252.0 L/s) and

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model 425

Carburetors & Mixers



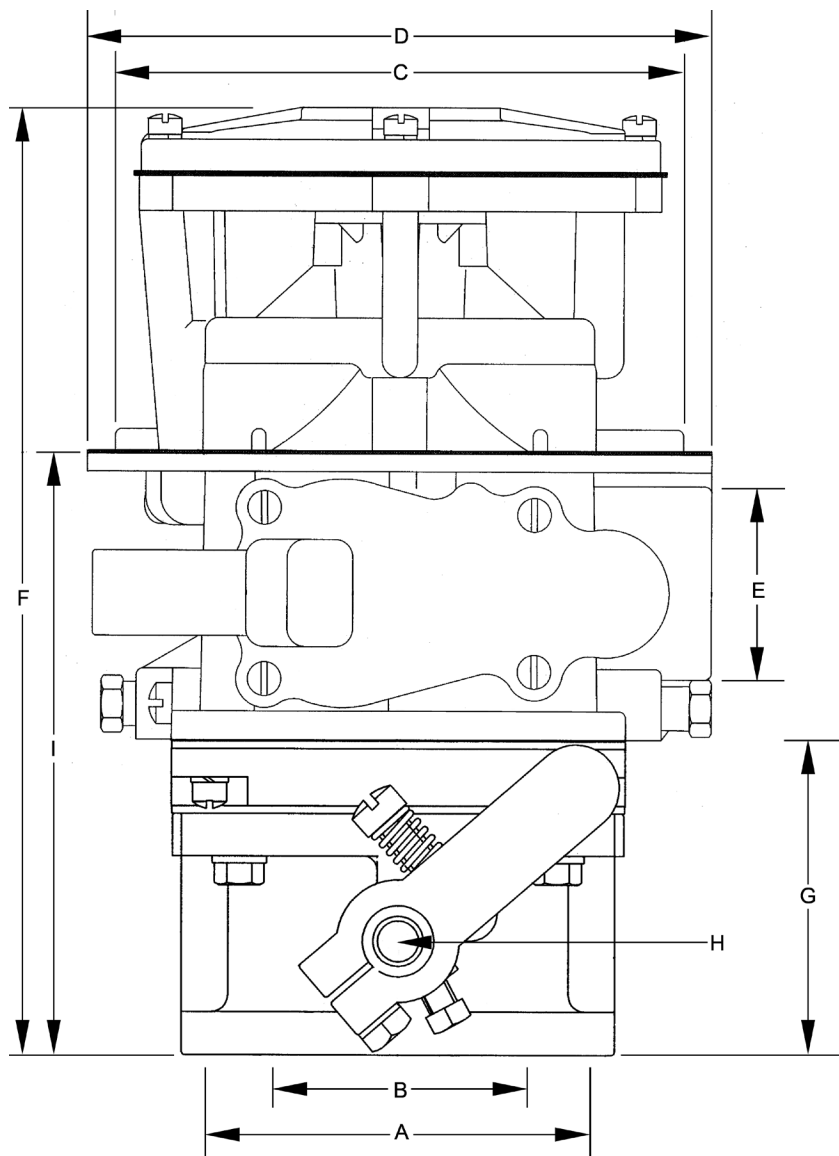
2.0" Hg manifold depression

# Model 425

## Carburetors & Mixers



### DIMENSIONS



				A	B	C	D	E	F	G	H	I
STD. CARB.	MIXER	THRTL. BODY	SAE FLANGE	CTR. TO CTR. BOLT SPACING	BORE	MIXER AIR HORN DIA.	OVERALL WIDTH	NPT FUEL INLET	OVERALL HEIGHT	THRTL. BODY HEIGHT	THRTL. SHAFT DIA.	FLANGE TO AIR HORN FLANGE
CT425-2	CT425M	BT2-7-4	2-1/2"	73.03 mm (2.875")	67.95 mm (2.688")	130.18 mm (5.125")	139.7 mm (5.50")	1"	212.73 mm (8.375")	53.98MM (2.125")	11.11mm (0.438")	130.18 mm (5.125")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model 425

Carburetors & Mixers



## COMPONENTS

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

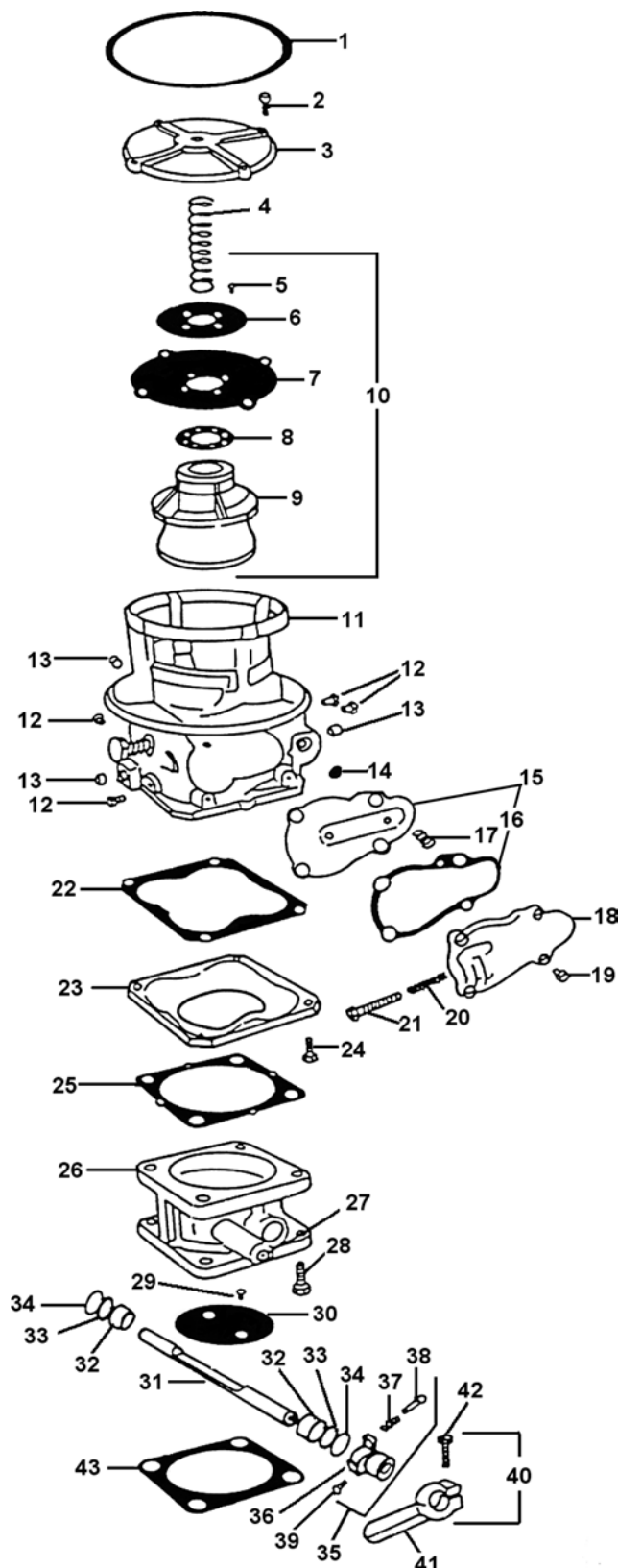
# Model 425

## Carburetors & Mixers



ITEM #	PART #	DESCRIPTION
1	G1-66	Gasket, Air Horn
2	S1-3	Screw, 10-24 x 5/8" SEMS (4)
3	NSS	Cover, air valve diaphragm
4	S2-30	Spring, air valve
5	NSS	Screw, 6-32 x 1/4" SEMS (4)
6	NSS	Plate, backup
7	D1-18	Diaphragm, air valve
8	D1-25	Diaphragm, air valve, silicone
9	NSS	Gasket air valve
10	AV1-16	Air-gas valve assembly
11	NSS	Body Assembly
12	NSS	Screw, 1/4" -28 x 5/16" (3)
13	NSS	Plug, 1/8" pipe
14	NSS	Seat, idle valve
15	AD1-28-1	Idle diaphragm assy (Includes #16)
16	NSS	Gasket, idle diaphragm (Incl w/#15)
17	NSS	Spring, idle valve
18	NSS	Cover, idle valve
19	NSS	Screw, 10-24 x 3/8" SEMS (4)
20	NSS	Spring, idle adjustment
21	NSS	idle adjust, 10-32 x 1-1/4"
22	G1-74	Gasket, mixer to adapter
23	NSS	Adapter, mixer to throttle body
24	S1-19	Screw, 12-24 x 5/8" SEMS (4)
25	G1-25	Gasket, adapter to throttle body
26	NSS	Throat, 2-1/2" SAE flange
27	NSS	Pin, throttle stop (2)
28	NSS	Screw, 5/16"-18 x 7/8"
29	NSS	Stop screw, 10-32 x 5/16"
30	F2-7	Fly, 2-1/2"
31	NSS	Fly, 3.0"
32	F2-9	Fly, 3.5"
33	NSS	Throttle shaft, 7/16" diameter
34	B3-44	Permaglide bearing, 7/16" I.D.
35	NSS	Seal, internal, 7/16" I.D. (2)
36	NSS	Ring, seal retainer (2)
37	AL1-11-1	Throttle stop assembly: 7/16"
38	NSS	Throttle stop lever, 7/16" I.D.
39	S2-15	Spring, idle stop screw
40	NSS	Stop screw, 10-32 x 3/4" SEMS (2)
41	NSS	Pin, screw, throttle stop
42	AL1-12-3	Throttle lever, long, with screw
43	NSS	Throttle lever, long
44	NSS	Screw, 1/4" -20 x 7/8"
45	G1-27	Gasket, 2-1/2" Flange
46	G1-28	Gasket, 3" Flange

NSS = Not Serviced Separately



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model 425

Carburetors & Mixers



## COMPONENTS (CONTINUED)

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

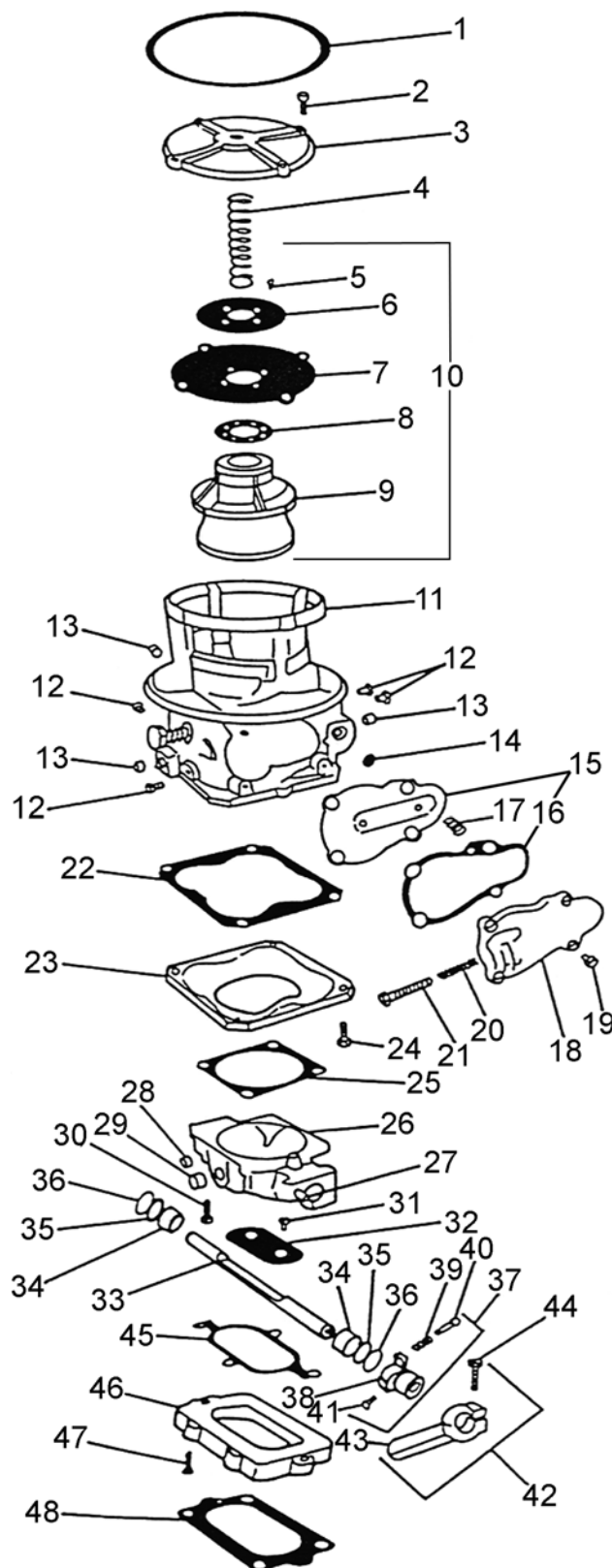


## Model 425

### Carburetors & Mixers

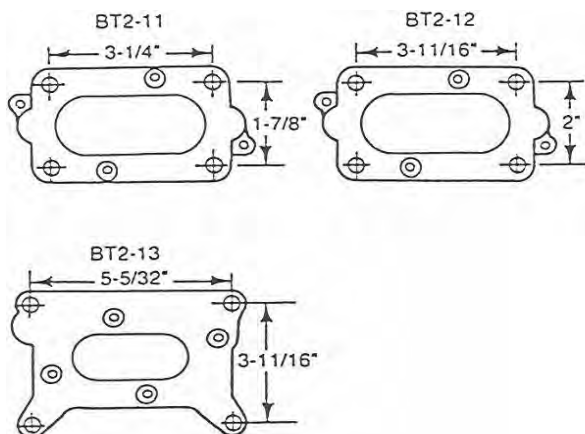


ITEM #	PART #	DESCRIPTION
1	G1-66	Gasket, Air Horn
2	S1-3	Screw, 10-24 x 5/8" SEMS (4)
3	NSS	Cover, air valve diaphragm
4	S2-30	Spring, air valve
5	NSS	Screw, 6-32 x 1/4" SEMS (4)
6	NSS	Plate, backup
7	D1-18	Diaphragm, air valve
	D1-25	Diaphragm, air valve, silicone
8	NSS	Gasket, air valve
9	NSS	Air-gas valve
10	AV1-16	Air-gas valve assembly
11	AB1-67	Gas Body Assy, (High BTU)
	AB1-67-3	Gas Body Assy, (Low BTU)
12	NSS	Screw, 1/4" -28 x 5/16" (3)
13	NSS	Plug, 1/8" pipe
14	NSS	Seat, idle valve
15	AD1-28-1	Idle diaphragm assy (Includes #16)
16	NSS	Gasket, idle diaphragm (Incl w/#15)
17	NSS	Spring, idle valve
18	NSS	Cover, idle valve
19	NSS	Screw, 10-24 x 3/8" SEMS (4)
20	NSS	Spring, idle adjustment
21	NSS	Screw, 10-32 x 1-1/4", idle adjust
22	G1-74	Gasket, mixer to adapter
23	NSS	Adapter, mixer to throttle body
24	S1-19	Screw, 12-24 x 5/8" SEMS (4)
25	G1-21	Gasket, adapter to throttle body
26	NSS	Body, 2B throttle
27	NSS	Pin, throttle stop (2)
28	NSS	Plug, 1/8" pipe
29	NSS	Plug, 1/4" pipe
30	S1-19	Screw, 12-24 x 5/8" SEMS (4)
31	NSS	Stop screw, 10-32 x 5/16" SEMS (2)
32	NSS	Fly, 2B
33	NSS	Throttle shaft, 7/16" diameter
34	NSS	Bearing, needle 7/16"
35	NSS	Seal, 7/16" shaft
36	NSS	Seal, internal (optional), 7/16"
37	NSS	Ring, seal retainer (2)
38	AL1-11-1	Throttle stop assembly: 7/16"
39	NSS	Throttle stop lever, 7/16" I.D.
40	NSS	Spring, idle stop screw
41	NSS	Stop screw, 10-32 x 3/4"
42	S1-18	Pin, screw, throttle stop
43	AL1-12-3	Throttle lever, long, with screw
44	NSS	Throttle lever, long
45	NSS	Screw, 1/4" -20 x 7/8" hex head
46	G1-44	Gasket, throttle body to flange
47	NSS	Flange, 1-1/4" 2B, with gasket
48	S1-19	Screw, 12-24 x 5/8" SEMS (4)



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES &amp; ACCESSORIES



## THROTTLE BODIES: ONE BARREL

PART #	DESCRIPTION
AT2-7	Throttle Body 2.5"
AT2-8	Throttle Body 3.0"

## THROTTLE BODIES: TWO BARREL

PART #	DESCRIPTION
<u>AT2-11-1*</u>	Throttle Body, 2V, 1-1/4" Flng.
<u>AT2-12*</u>	Throttle Body, 2V, 1-1/2" Flng.
<u>AT2-13-1*</u>	T/B Holley, 7/16" Shaft

## THROTTLE SHAFTS

PART #	DESCRIPTION
S5-4	Shaft, 7/16" Diameter Long

## RETURN SPRINGS

PART #	DESCRIPTION
AS2-50-4	7/16" Return Spring Ass'y

## BRACKETS

PART #	DESCRIPTION
AB4-4	Bracket, Boden Wire
<u>AB4-6*</u>	Bracket, Rear Fly Booster, Spring

## TAMPER RESISTANT PLUG

PART #	DESCRIPTION
P3-51519-001	Plug, Tamperproof, 425

## THROTTLE BODIES

PART #	DESCRIPTION
BT2-11*	Body Flange w/ Gasket
AT2-12*	Body Flange w/ Gasket
BT2-13*	Body Flange w/ Gasket

## CARBURETORS

PART #	DESCRIPTION
CT425-2	Carb. Ass'y, 2-1/2 SAE 5" C/S A/H Tamper Rest.

## MIXERS

PART #	DESCRIPTION
CT425M	Mixer Ass'y, Tamper Resistant
CT425M-2	Mixer Ass'y, Tamper Resistant, Silicone
<u>CT425M-510*</u>	Mixer Ass'y, 425
FT425M-2	Mixer Ass'y, Feedback, Tamper Resistant
<u>FB425M*</u>	Mixer Assy, Model 425

## LEVERS

PART #	DESCRIPTION
AL1-11-1	Stop Ass'y, 7/16" Long
AL1-12-1	Stop Ass'y, 3-1/16" Long
AL1-12-3	Stop Ass'y, 2-5/16" Long
NOTES:	

Note: AL1-12 levers used with AL1-11 lever stop. See lever section of catalog for other optional levers.

## AIR GAS VALVE ASSEMBLIES

PART #	DESCRIPTION
AV1-16	Air Gas Valve, Standard, Hydrin
AV1-16-2	Air Gas Valve, Standard, Silicone
AV1-1637-2	Air Gas Valve, w/V2-37, Silicone, for EC1, Rich
<u>AV1-1644-2*</u>	Air Gas Valve, w/V2-44 Silicone, for >370 ci engines with lean cruise
<u>AV1-16-510*</u>	Air Gas Valve, for 425-10
<u>AV1-1651*</u>	Air Gas Valve, w/ V2-51, Hydrin, feedback
<u>AV1-1651-2*</u>	Air Gas Valve, w/ V2-51, Silicone, feedback
<u>AV1-20875*</u>	Air Gas Valve, V2-51, Silicone

## ADAPTERS

PART #	DESCRIPTION
<u>A3-129*</u>	Adapter, 400VF Machined
<u>A2-73*</u>	Adapter 1/2" Spacer Adapter 5" ID

## ASSEMBLIES & ACCESSORIES (CONTINUED)

### ADAPTERS

PART #	DESCRIPTION
AA1-50-5	Adapter Assy
<u>AA2-14*</u>	Adapter Air Horn 90° X 3-1/2"
AA2-15	Adapter Air Horn 90° X 4"
<u>AA2-40*</u>	Adapter Air Horn 90° X 5"
<u>AA2-46*</u>	Adapter, Air Horn 90° X 5"
<u>AA2-49*</u>	Adapter, A/H Ford & Chevy 1.5" spacer
<u>AA3-19*</u>	Adapter, 225M to Holley 2B
AA3-35	Adapter, 425 to 2.5" & 3" T/B
AA3-47	Adapter, 225 to CA425 T/B
<u>AA3-48*</u>	Adapter, CA425M to AA3-19
<u>AA3-75*</u>	Adapter, CA425 to CA300A
<u>AA3-80*</u>	Adapter, Dual 425 Mixer to Holley
<u>AA3-86*</u>	Adapter, 425 Mixer to Rochester. Q-Jet
<u>AA3-129*</u>	Adapter Assy, 3" Hose
<u>A2-47*</u>	Adapter, Air Cleaner Base 125 - 425M
<u>A2-54*</u>	Adapter, Air Cleaner Base 425M
<u>A2-55*</u>	Adapter, Air Cleaner Base 425M
<u>A1-79*</u>	Adapter, 425 Carb., Small
<u>A1-80*</u>	Adapter, 425 Carb., Large
<u>A2-73*</u>	Adapter, 1/2" Spacer, 5" ID

### AIR CLEANER ASSEMBLIES

PART #	DESCRIPTION
<u>AF1-14*</u>	Filter Ass'y, 500CFM
<u>AF1-15*</u>	Filter Ass'y, 400CFM
<u>AF1-16-2*</u>	Filter Ass'y, 550CFM
<u>AF1-16-3*</u>	Filter Ass'y, 550CFM

### FILTER

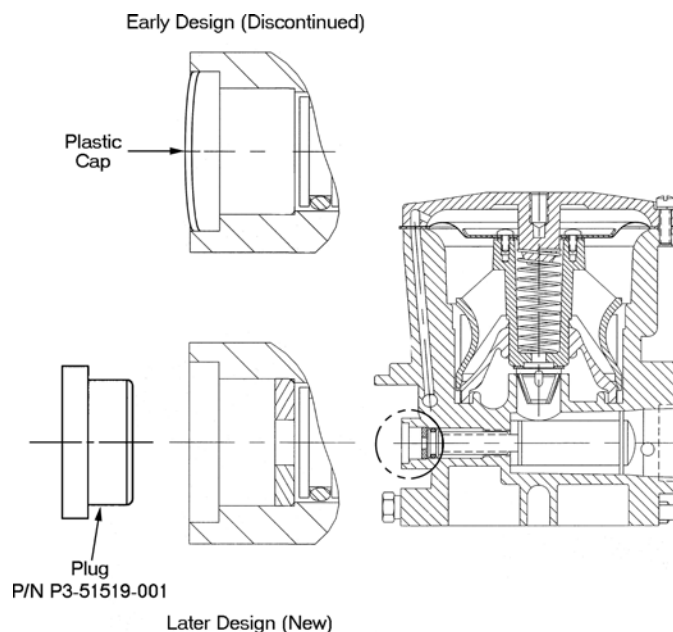
PART #	DESCRIPTION
<u>F1-14*</u>	Filter, Element 500CFM
F1-7	Filter, Element UL Approved
<u>F1-9*</u>	Filter, Element 500CFM
<u>C1-48*</u>	Cover, Filter, AF1-14 & AF1-8
<u>C1-60*</u>	Cover, Filter, AF1-7

### GASKET AND SEALS

PART #	DESCRIPTION
G1-30	Gasket, Flange 425
G1-46	Gasket, Flange 1-1/2" 2B T2-12
<u>G1-65*</u>	Gasket, plate Venturi P2-24
<u>G1-75-3*</u>	Gasket, Adapter A3-37 Mod 425
<u>G1-96*</u>	Gasket, Mixer Adapter 425M
<u>G1-126</u>	Gasket, Throttle Adapter, A3-67

### TAMPER RESISTANT CAPS

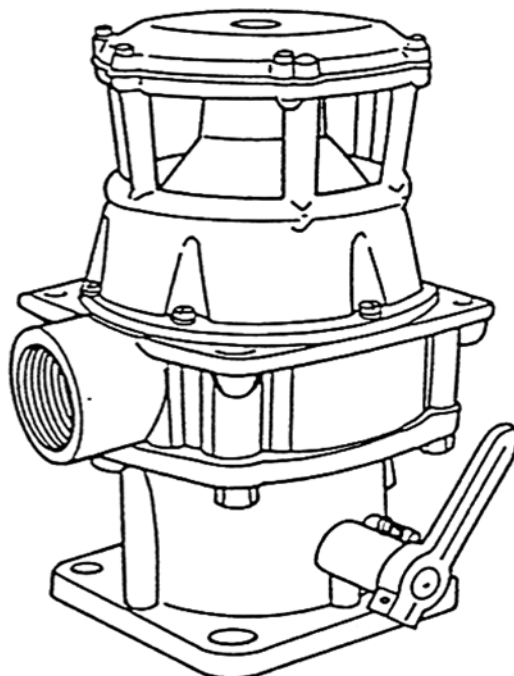
The optional plastic cap used to cover the idle adjustment screw, has been discontinued. A new plug (part number P3-51519-001) is available separately to comply with tamper resistance requirements.



### TAMPER RESISTANT CAPS

PART #	DESCRIPTION
P3-51519-001	Plug, Tamperproof 425

## Model 600



### DESCRIPTION

The 600 is a gaseous fuel carburetor of the concentric flow air valve type. This mixer is suitable for LPG Vapor, Natural Gas, Landfill and Digester gases for applications requiring up to 960 CFM (453.1 L/s). A precision gas metering valve is attached to the air valve. Both the air and gas valve motions are linear in relation to volumetric flow. The air/fuel ratio is controlled by the adjustable power valve, shape of the gas metering valve, and the pressure from the gas regulator. Gas valves are shaped to provide A/F ratio versus flow characteristics defined by the fuel composition.

### SPECIFICATIONS

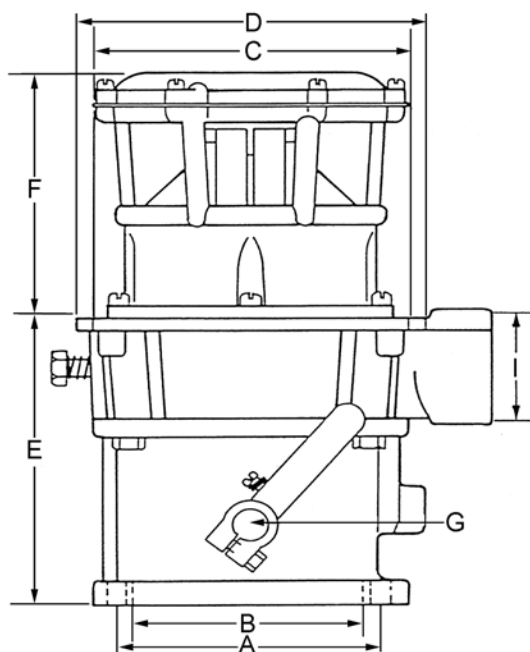
Fuel Type	
LPG Vapor .....	90% + Propane
Natural Gas .....	85% + Methane
Digester Gas.....	56-72% Methane
Landfill Gas .....	45-56% Methane
Inlet Pressure .....	+5.0" w.c. (1.24 kPa) over Air Inlet (Idle Setting)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
HP/kW Rating .....	600hp (447.0 kW) @ 960 CFM (453.1 L/s) and 2.0" Hg manifold depression

# Model 600

## Carburetors & Mixers



### DIMENSIONS



STD. CARB.	MIXER	THRTL BODY	SAE FLANGE	CTR TO CTR BOLT SPACING	BORE	AIR HORN FLANGE BOLT CTR TO CTR	OVERALL AIR HORN WIDTH	THRTL BODY TO AIR HORN	AIR HORN TO TOP OF MIXER	THROTTLE SHAFT DIAMETER	THROTTLE SHAFT LENGTH	NPT FUEL INLET
600-1	<u>600-51218-001*</u>	AT2-17	4"	106.3mm (4.19")	107.9mm (4.25")	5" Sq.	174.6mm (6.87")	146.0mm (5.75")	123.8mm (4.89")	12.7mm (.50")	212.7mm (8.38")	38.1mm (1.50")
600-1-2	<u>600-51218-004*</u>	AT2-17	4"	106.3mm (4.19")	107.9mm (4.25")	5" Sq.	174.6mm (6.87")	146.0mm (5.75")	123.8mm (4.89")	12.7mm (.50")	212.7mm (8.38")	38.1mm (1.50")
600-77	<u>600-51218-007*</u>	AT2-17	4"	106.3mm (4.19")	107.9mm (4.25")	5" Sq.	174.6mm (6.87")	146.0mm (5.75")	123.8mm (4.89")	12.7mm (.50")	212.7mm (8.38")	38.1mm (1.50")

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

Model 600

Carburetors & Mixers



## COMPONENTS

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

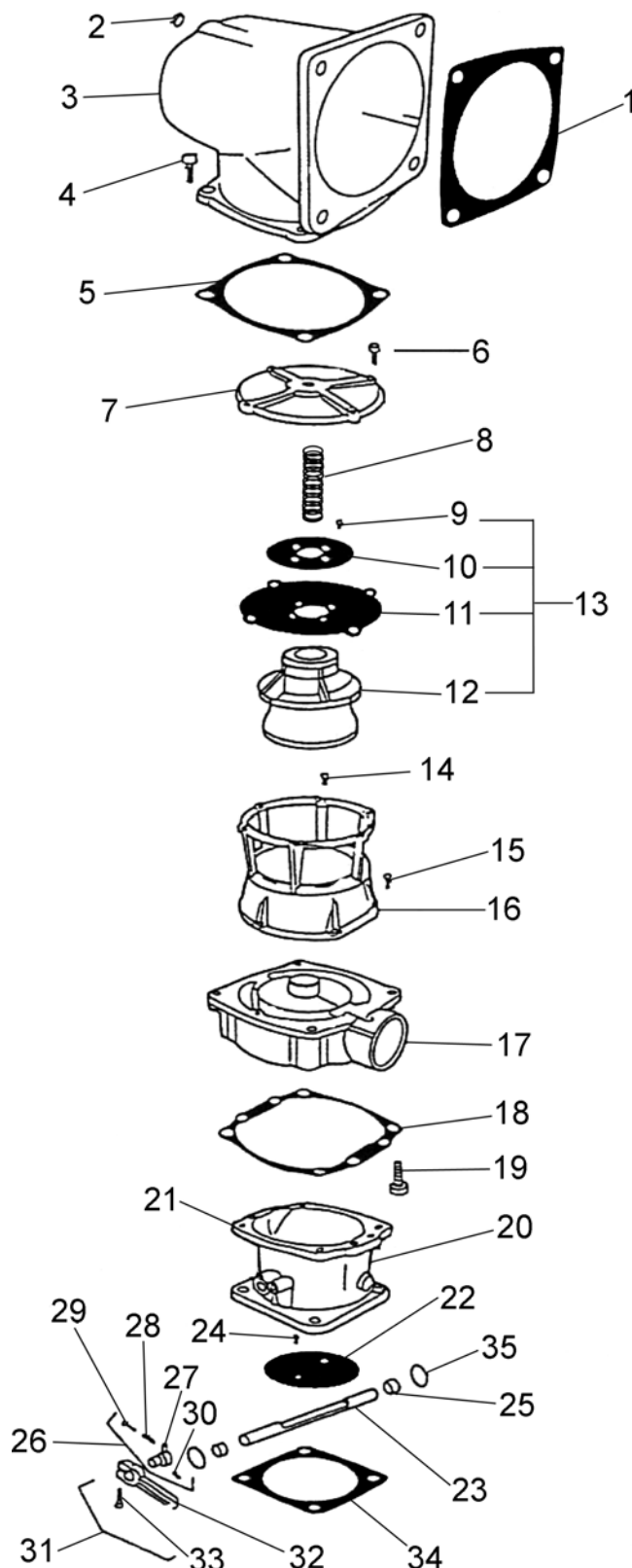
# Model 600

## Carburetors & Mixers



ITEM#	PART #	DESCRIPTION
1	G1-77*	Gasket, Air Horn
2	NSS	Plug, 3/8" pipe
3	NSS	Air Horn, 5-5/8" bolt centers
4	NSS	Screw, 3/8-16 x 1" SEMS (4)
5	G1-76-1*	Gasket, body to Air Horn
6	S1-3	Screw, 10-24 x 5/8" SEMS (6)
7	C1-32	Cover, air valve diaphragm
8	S2-32-1	Spring, air valve, updraft
	S2-32-2	Spring, air valve, downdraft (yellow)
9	S1-12	Screw, 8-32 x 5/16" SEMS (4)
10	NSS	Plate, backup
11	D1-20-1	Diaphragm
	D1-20-2*	Diaphragm, Silicone
12	BV1-17	Air valve assembly, Propane
	AV1-17	Air-gas valve assembly, complete
13	AV1-17-26-4	Air-gas valve, natural gas 900 BTU
	LHAV1-17-2	Valve Assy, Silicone
14	S1-3	Screw, 10-24 x 5/8" SEMS (2)
15	S1-19	Screw, 12-24 x 5/8" SEMS (6)
	B1-30	Body, air valve
16	NSS	Body, air valve, digester gas
	NSS	Body Horizontal Mount
17	AB1-31	Gas inlet body assembly
18	G1-78-1*	Gasket, throttle body to mixer
19	NSS	Screw, 3/8"-16 x 1" SEMS (4)
20	NSS	Throat, 4" SAE flange
21	NSS	Pin, throttle stop (2)
22	F2-11	Fly, 4-13/16" diameter
	F2-9	Fly, 3-11/16" diameter
23	S5-10	Throttle shaft, 1/2" dia.
	NSS	Throttle shaft, 9/16" dia., 4" fly
24	NSS	Screw, 10-32 x 3/8" SEMS
25	NSS	Bearing, needle, 5/16" I.D.
	NSS	Bearing, needle, 1/2" shaft (2)
26	AL1-11-2	Throttle stop assembly: 1/2" I.D.
27	NSS	Throttle stop lever, 1/2" I.D.
28	NSS	Spring, idle stop screw
29	NSS	Stop screw, 10-32 x 3/4"
30	S1-18	Pin, screw, throttle stop
31	AL1-12-1	Throttle lever, with screw
32	NSS	Throttle lever
33	NSS	Screw, 1/4"-20 x 7/8" hex
34	G1-38*	Gasket, 4" flange
	G1-29	Gasket, 3-1/2" flange
35	NSS	Throttle shaft seal, 1/2"

\*Included in Repair Kit RK-600-1



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



## ASSEMBLIES & ACCESSORIES

### MIXER: UPDRAFT - STANDARD

PART #	DESCRIPTION
<u>600M-2*</u>	Updraft Mixer w/Silicone
<u>600M-3*</u>	Mixer Assy, Turbo w/Silicone

### MIXER: DOWNDRAFT - STANDARD

PART #	DESCRIPTION
600XM-2	Downdraft Mixer w/Silicone

### THROTTLE BODIES

PART #	DESCRIPTION
AT2-9	3-1/2" SAE Flange
AT2-17	Throttle Body, SAE 4", Permaglride Bearings
<u>AT2-17-2*</u>	4" SAE 9/16" N/B, Shaft Offset
<u>BT2-18-356*</u>	Throttle Assy 1-1/4 Permaglrid

### ADAPTERS

PART #	DESCRIPTION
AA2-16	Adapter, Air Horn 6" Dia. x 90°
AA2-19	Adapter, Air Horn 6" Dia. to 4-5/8" Dia.

### REPAIR KITS

PART #	DESCRIPTION
<u>RK-B3-43*</u>	Repair Kit, T2-9, 10 & 17 Permaglride
RK-B3-43-1	Retro Kit, to Upgrade T2-9, 10 & 17
RK-600-1	Repair Kit, 600 (Includes RK-B3-43-1)
RK-B3-479	Repair Kit (Includes bearing, seal & sleeve)

### THROTTLE SHAFTS

PART #	DESCRIPTION
S5-10	1/2" Dia. 8-3/8" Long
<u>S5-14*</u>	9/16" Dia. 9" Long, 4" Fly

### AIR GAS VALVES ASSEMBLIES

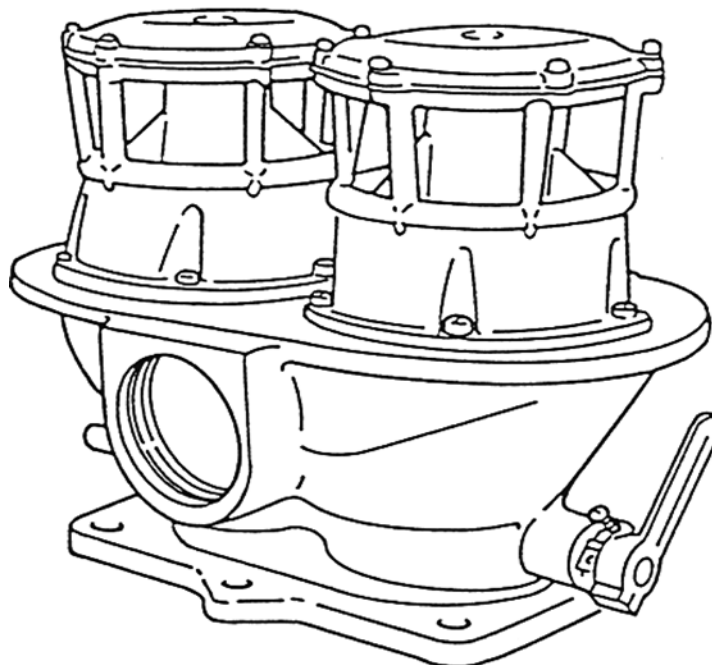
PART #	DESCRIPTION
AV1-17	Air Gas Valve Assembly
AV1-17-2	Air Gas Valve Assembly, Silicone
AV1-17-3	Air Gas Vlv. Ass'y, Silic. Waukesha Tbo.
AV1-17-4	Air Gas Valve Ass'y, w/ Diaph. 600
AV1-17-6	Air Gas Valve Ass'y, Waukesha
AV1-17-7	Air Gas Valve Ass'y, w/ V2-71
<u>DG-AV1-17-2*</u>	Air Gas Valve, Digester, Silicone

### GAS MIXER VALVES

PART #	DESCRIPTION
V2-21	Valve, Gas Mixer, 600 Series
V2-26-4	Valve, Natural Gas 900 BTU
V2-31	Valve, Gas Mixer Low Heat
V2-41	Valve, Gas Mixer Turbo
V2-55	Valve, Gas Mixer Wauk
V2-71	Valve Gas Mixer Cat 35-16
<u>V2-75*</u>	Valve Gas Mixer 600 (493662)



## Model 600D



### DESCRIPTION

The Model 600D mixer is a concentric flow type air valve carburetor. **This mixer is suitable for LPG Vapor, Natural Gas, Landfill and Digester gases for applications requiring up to 1600 CFM (7551 L/s).** A precision gas metering valve is attached to the air valve. The air valve and gas valve motion is linear in relation to the volumetric flow. The air/fuel ratio is controlled by the adjustable power valve, jet, shape of the gas metering valve and the pressure from the gas regulator. Gas valves are shaped to provide A/F versus flow characteristics defined by the fuel composition.

### SPECIFICATIONS

#### Fuel Type

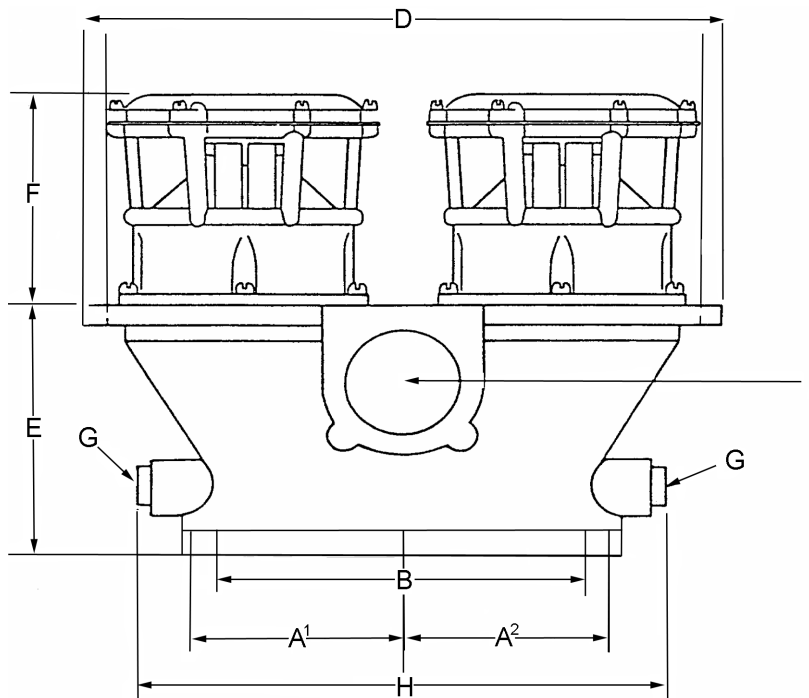
LPG Vapor .....	90% + Propane
Natural Gas .....	85% + Methane
Digester Gas.....	56-72% Methane
Landfill Gas .....	45-56% Methane
Inlet Pressure .....	+5.0" w.c. (1.24 kPa) over Air Inlet (Idle Setting)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical
HP/kW Rating .....	1,000 hp (745.7 kW) @ 1600 CFM (755 L/s) and 2.0" Hg manifold depression

# Model 600D

## Carburetors & Mixers



### DIMENSIONS

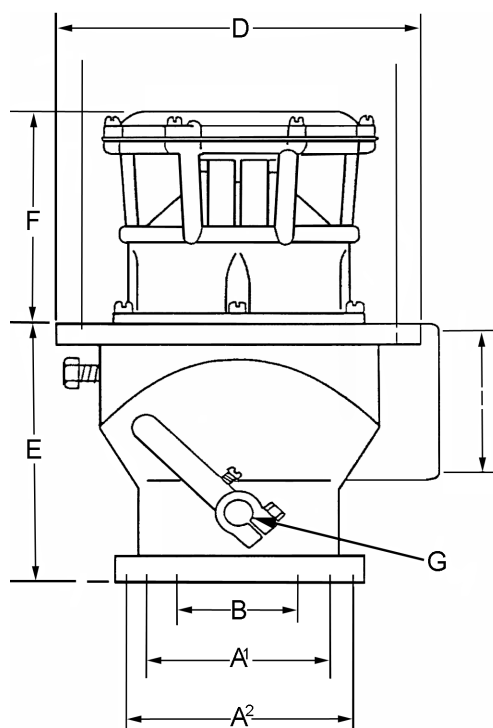


"A" VIEW

				A1	A2	B	C	D	E	F	G	H	I
STANDARD CARB	MIXER	THROTTLE BODY	SAE FLANGE	CENTER TO CENTER BOLT SPACING	CENTER TO CENTER BOLT SPACING	BORE	AIR HORN ADAPTER	OVERALL AIR HORN WIDTH	THROTTLE BODY TO AIRHORN HEIGHT	AIRHORN TO TO OF MIXER	THROTTLE SHAFT DIAMETER	THROTTLE SHAFT LENGTH	NPT FUEL INLET
<u>600D-1-2*</u>	<u>600DXM-2*</u>	NSS	4" Duplex	104.7 mm (4.125")	4"	204.7 mm (8.0625")	NSS	339.7 mm (13.375")	146.05 mm (5.75")	123.8 mm (4.875")	12.7 mm (.50")	315.91 mm (12.4375")	63.50 mm (2.5")
600D-22H		NSS	4" Duplex	104.7 mm (4.125")	4"	204.7 mm (8.0625")		339.7 mm (13.375")	146.05 mm (5.75")	123.8 mm (4.875")	12.7 mm (.50")	315.91 mm (12.4375")	63.50 mm (2.5")

**Note:** DG (Digester gas) carburetors reduce airflow 30% -X (or DX) indicates downdraft carburetor. Refer to A2 Air Horn adapter section for additional adapter not shown in picture

## DIMENSIONS (CONTINUED)



"B" VIEW

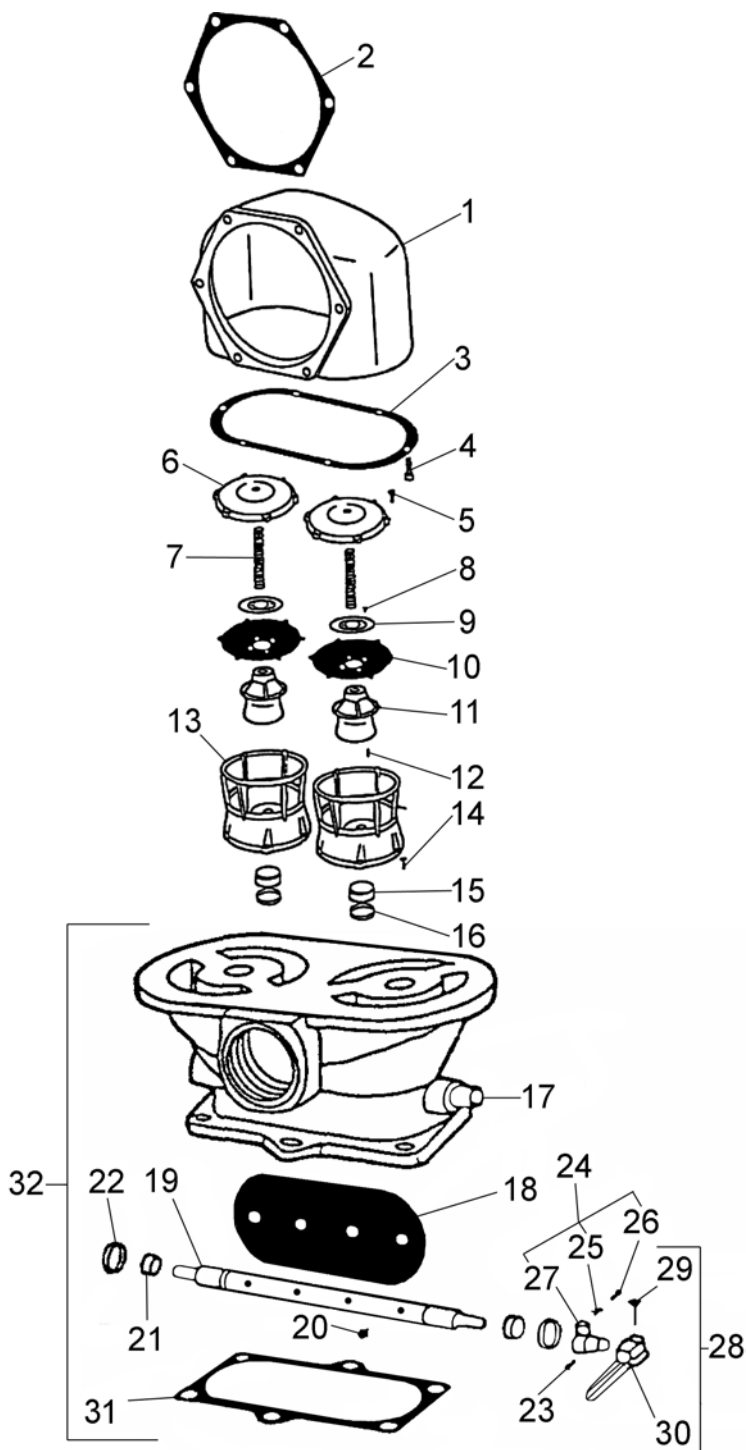
		"B" VIEW												
		A1	A2	B	C	D	E	F	G	H	I			
STANDARD CARB	MIXER	THROTTLE BODY	SAE FLANGE	CENTER TO CENTER BOLT SPACING	CENTER TO CENTER BOLT SPACING	BORE	AIR HORN ADAPTER	OVERALL AIR HORN WIDTH	THROTTLE BODY TO AIRHORN HEIGHT	AIRHORN TO TOP OF MIXER	THROTTLE SHAFT DIAMETER	THROTTLE SHAFT LENGTH	NPT FUEL INLET	
<u>600D-1-2*</u>	<u>600DXM-2*</u>	NSS	4" Duplex	98.4 mm (3.875")	136.5 mm (5.375")	96.8 mm (3.8125")	AT2-18	339.7 mm (13.375")	146.05 mm (5.75")	123.8 mm (4.875")	12.7 mm (.50")	315.91 mm (12.4375")	63.50 mm (2.5")	
600D-22H	<u>600DXM-2*</u>	NSS	4" Duplex	98.4 mm (3.875")	136.5 mm (5.375")	96.8 mm (3.8125")	AT2-18	339.7 mm (13.375")	146.05 mm (5.75")	123.8 mm (4.875")	12.7 mm (.50")	315.91 mm (12.4375")	63.50 mm (2.5")	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## COMPONENTS

ITEM #	PART #	DESCRIPTION
1	NSS	Air Horn, 8" 90°
2	G1-82*	Gasket, Air Horn Inlet
3	G1-151	Gasket, Air Horn to Throttle Body
	NSS*	Gasket, Air Horn to Throttle Body
4	S1-34*	Screw, 3/8" - 16 x 1" SEMS
5	S1-3	Screw, 10-24 x 5/8" SEMS
6	C1-32	Cover
7	S2-32-1	Spring, Air Valve Updraft
	S2-32-2	Spring, Air Valve Downdraft
8	S1-12	Screw, 8-32 x 5/16" SEMS
9	P2-21	Plate, Backup
10	D1-20-2*	Diaphragm Silicone
	D1-20-3	Diaphragm, Mixer FVMQ
11	BV1-17	Air Valve, Ass'y Propane
12	S1-3	Screw, 10-24 x 5/8" SEMS
13	B1-30	Body
14	S1-19	Screw, 12-24 x 5/8 SEMS
15	J1-6	Jet
16	S3-39*	Seal
17	P1-6	Pin, Throttle Stop
18	F2-12	Fly, 8"
	F2-20	Fly, 7.75 X 2.75 Oval
19	AS5-9	Throttle Shaft, Slotted 1/2" Dia.
	NSS	Throttle Shaft, Slotted 1/2" Dia.
20	NSS	Screw, 10-32 x .62
21	B3-42	Permaglide Bearing
22	S3-92	Seal
23	S1-18	Pin, Screw Throttle Stop
24	AL1-11-2	Throttle Stop Assembly
25	NSS	Spring, Idle Stop Screw
26	NSS	Stop, Screw
27	NSS	Throttle Stop Lever
28	NSS	Throttle Lever, w/ Screw
29	NSS	Screw, 1/4 - 20 x 7/8"
30	AL1-12-1	Throttle Lever
31	G1-80*	Gasket, Manifold
32	NSS	Throttle Body Complete
Not Shown	W1-60	Washer, .500x1.25x.029 SS
	W1-68	Washer, .500x.936x.059 Steel
	NSS	Plug, 3/8 NPT 5/16 Hex Sch Brass

\*Included in Repair Kit RK-600DX-1



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## ASSEMBLIES & ACCESSORIES

### MIXERS: UPDRAFT - STANDARD

PART #	DESCRIPTION
<u>600DM-791*</u>	Mixer, Updraft, 4" SAE 2B flange, no Air Horn, special
<u>600DXM-2*</u>	Carb., 4" 2B Downdraft, Less Air Horn, w/ Sil.

### THROTTLE BODIES

PART #	DESCRIPTION
<u>AT2-18-1*</u>	4"SAE flange, 3/4" shaft diameter, w/Permaglide bearings, (standard)

### THROTTLE SHAFTS

PART #	DESCRIPTION
AS5-9	1/2" diameter, 2-7/16" long, with inner bearings, 3/4 O.D. (standard)

### GASKETS

PART #	DESCRIPTION
G1-151	Gasket, Air-Horn-Throttle 600D
G1-86	Gasket, Flange 8" A3-44 Adapter

### LEVERS

PART #	DESCRIPTION
AL1-11-2	Stop Assy 1/2" Mounting ID, 1" Long (Standard)
AL1-12-1	Stop Assy, 3-1/16" Long (Standard)
AL1-12-18E	Lever Throttle (59018E)

Notes:

AL1-1 Levers Used with AL1-11 Lever Stops.

See Lever Section of Catalog for Others

### AIR GAS VALVES ASSEMBLIES

PART #	DESCRIPTION
AV1-17	Air Gas Valve Assembly
AV1-17-2	Air Gas Valve Assembly, Silicone
AV1-17-3	Air Gas Valve, Ass'y, Silic. Waukesha, Turbo
AV1-17-4	Air Gas Valve Ass'y, w/Diaph 600, w/V2-41
AV1-17-6	Air Gas Valve Ass'y, Waukesha w/ V2-55
AV1-17-7	Air Gas Valve Ass'y, w/ V2-71
<u>DG-AV1-17-2*</u>	Air Gas Valve, Di/Gas (550 - 750BTU), w/ Sil.
LHAV1-17-2	Air Gas Valve Lo/Heat (750 - 950BTU), w/ Sil.
P2-53	Plate, Air Valve Piston

### ADAPTERS

PART #	DESCRIPTION
AA2-16	Air Horn, 90° by 6" to 600
<u>AA2-17*</u>	Air Horn, Ingersoll Rand 8SVG
<u>AA2-18*</u>	Air Horn, 8" diameter x 90 degrees (side)
AA2-18-2	Air Horn, 8" 90° w/ Baffle
<u>AA2-62*</u>	Air Horn, 90° 7" End
<u>AA3-38*</u>	Adapter assembly, Ingersoll Rand 8SVG
<u>AA3-44*</u>	Adapter, 600D Base 7.75" Bolt

### GASKETS

PART #	DESCRIPTION
<u>G1-79*</u>	Gasket for Adapter A3-38

### DIAPHRAGMS

PART #	DESCRIPTION
AD1-20-3	Diaphragm, Mixer Assy

### REPAIR KITS

PART #	DESCRIPTION
RK-B3-42-1	Retrofit kit to upgrade, T2-18, throttle bodies
RK-600DX-1	Repair Kit, 600DX (Includes RK-B3-42-1)

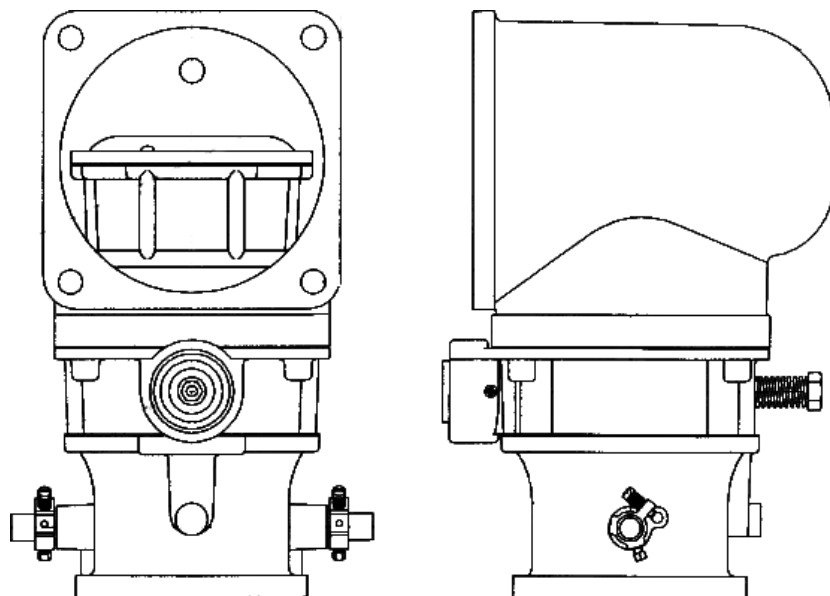
### SPRINGS

PART #	DESCRIPTION
S2-33	Spring/600 Load Adj

### AIR HORNS

PART #	DESCRIPTION
A2-22	Air Horn 600
A2-23	For 600DX-5

## Model 600 Varifuel



### DESCRIPTION

The Model 600VF mixer is a concentric flow type air valve carburetor with a precision gas metering valve attached to the air valve for applications requiring up to 960 CFM (453.1 L/s). The air valve and gas valve motion is linear in relation to the volumetric flow. The air/fuel ratio is controlled by the adjustable power valve and the shape of the gas metering valve and the pressure from the gas regulator.

Gas valve and jet combinations may be selected to meet various fuel and burn strategies. The gas valves and jets are easily replaced to provide performance as defined by each customer or meet specific emission levels. Gas valves and jets can be ordered in matching sets (see page 122). These units are designed for 14,000 MTBF (mean time between failures). Advanced guide bushing material provides a more durable solution over the standard 600 carburetor.

The 600 Varifuel Mixer is not available as an assembly, but it is ordered in modular components to be assembled to the desired configuration.

### SPECIFICATIONS

#### Fuel Type

LPG Vapor.....	90% + Propane
Natural Gas.....	85% + Methane
Digester Gas.....	56-72% Methane
Landfill Gas.....	45-56% Methane
Inlet Pressure .....	+5.0" w.c. (1.24 kPa) over Air Inlet (Idle Setting)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Various (updraft, downdraft, side draft)
Diaphragm Material .....	Fluorosilicone
HP/kW Rating .....	600 HP (447.4 kW) @ 960 CFM (453.1 L/s) and 2.0" Hg manifold Depression

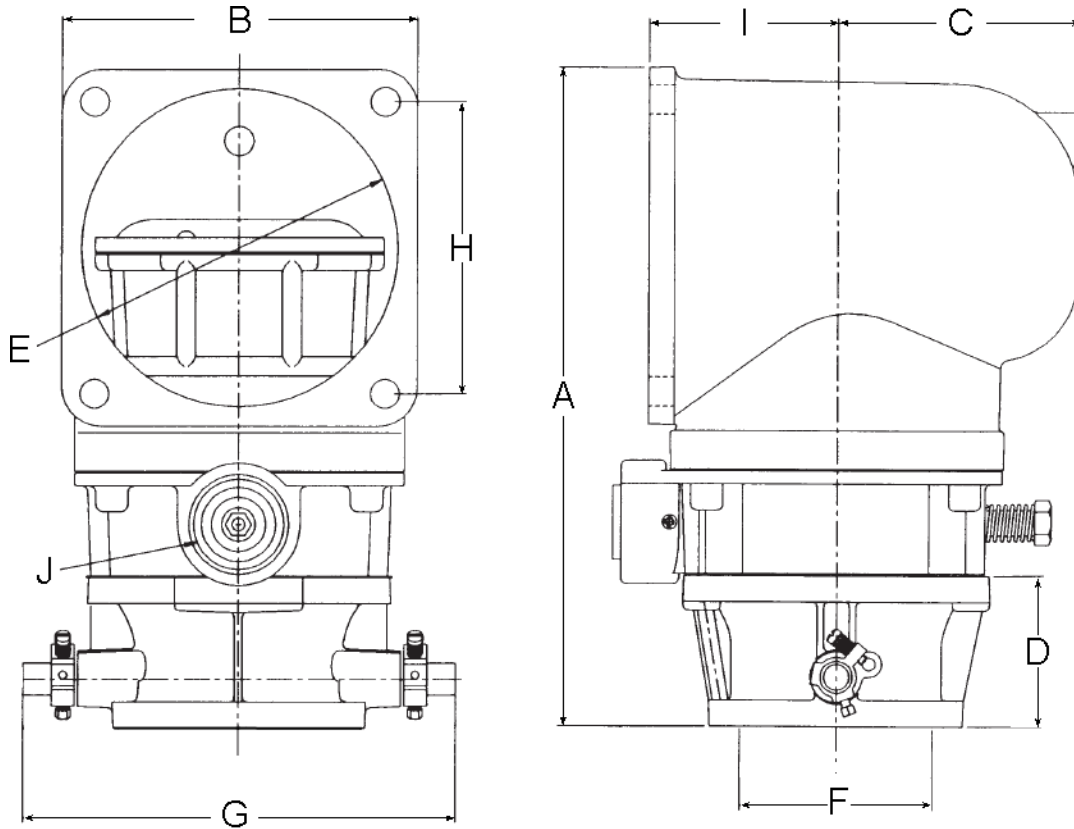
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Model 600 Varifuel

### Carburetors & Mixers



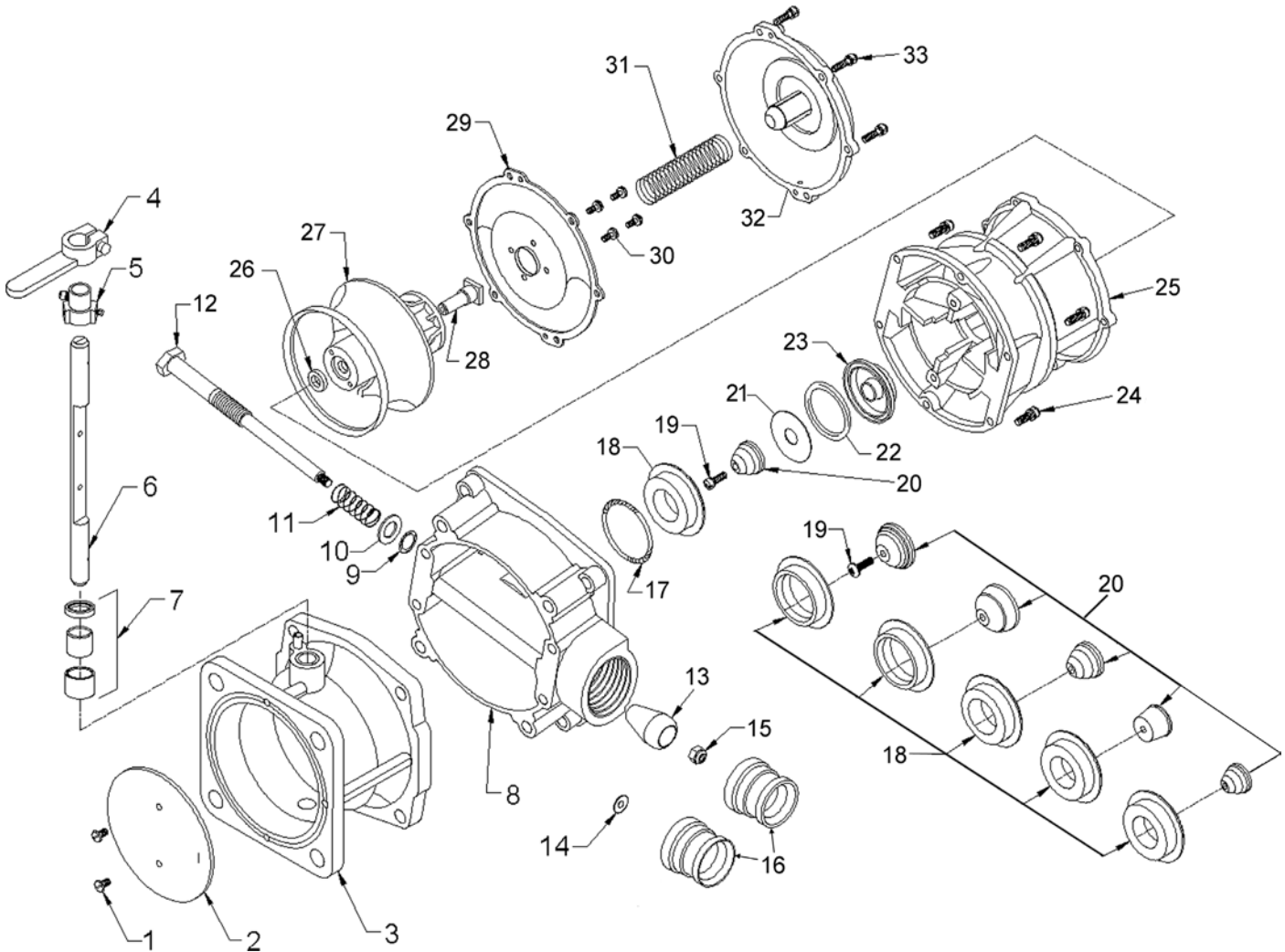
#### DIMENSIONS



A	B	C	D	E	F	G	H	I	J
OVERALL HEIGHT	FLANGE WIDTH	CTR TO INLET	THROTTLE BODY HEIGHT	INLET DIA.	BORE	MAX WIDTH	HOLE SPACING	FUEL INLET NPT	FRONT TO CENTER
13.56" 344.4mm	6.88" (174.8mm)	4.66" (118.4mm)	3.75" (95.25mm)	6.13" (155.7mm)	3.69" (93.7mm)	8.38" (212.8mm)	5.63" (143.0mm)	1.5" (39.4mm)	3.63" (92.2mm)

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## COMPONENTS





### COMPONENTS

ITEM#	PART #	DESCRIPTION
1	S1-12	Screw, Pan Hd, 8-32 X 5/16 L
2	F2-11	Fly, 4.00" (For T2-17)
	F2-9	Fly, 3.50" (For T2-67 & T2-80)
3	NSS	Throttle, Model 600, 4.19" Bore
	NSS	Throttle, Model 600, 3.69" Bore
	NSS	Throttle, Model 600, 3.69" Bore
4	AL1-12-1	Lever, 200D Throttle
5	AL1-11-2	Lever, Thr Stop 1/2"
	S5-10	Shaft/600-1/2In, 4.19" Bore
6	S5-39	Shaft, Throttle 600VF
	S5-5	Shaft, Throttle 1/2" 3.69" Bore
7	RK-B3-43-1	Repair Kit, Bearing Seal Housing
8	B1-31-2	Gas Body, 600VF (High Btu)
9	NSS	O-Ring, .479"Id .101"Cs Viton
10	W1-38	Washer, .515X.872X.056, Steel
11	S2-33	Spring/600 Load Adj
12	NSS	Screw, Power Valve
13	V2-60	Valve, Load Adj 600VF 1000Btu
14	NSS	Washer, .263X.744X.051, Steel
15	NSS	Nut, Lock W/Nylon Insert, 1/4-28
16	J1-33	Power Jet, 600VF Lo Btu
	NSS	Jet, Load Adj 600VF
17	NSS	O-Ring, 1.734"Id .139"Cs Nbr
18	J1-23	Jet, Gas 600VF 1.125"Id
19	S1-3	Screw 10-24X5/8 Sltdfil Sltdzn
	V2-21-3	Valve, Gas Mixer 600 Series Ng
	NSS	Valve, Gas Mixer Land Fill
20	NSS	Valve, Gas Mixer 600VF1 Dg
	NSS	Valve, Gas Mixer 600 Ulb Mflow
	NSS	Valve, Gas Mixer Lean FB
21	W1-99	Washer, .379X1.500X.032, 18-8Ss
22	S3-76	O-Ring, 1.460"Id .139"Cs Viton
	NSS	Piston, Air Valve 600VF
23	P4-9	Piston, Air Valve 600VF
24	S1-19	Screw 12-24X5/8 Sltdfil Sltdznc
25	NSS	Body Assy, 600
26	S3-82	O-Ring, .359"Id .139"Cs Nbr
27	NSS	Air Valve Assy, 600
28	S5-29	Shaft, Gas Valve 600
29	AD1-20-3	Diaphragm, Assy Mixer Fvmq 600
30	S1-12	Screw, Pan Hd, 8-32 X 5/16 L
	S2-32-1	Spring, Air Valve, Updraft Zinc
	S2-32-2	Spring, Air Valve, Downdraft, Yellow
31	S2-32-3	Spring, Air Valve, Sidedraft, Green
	S2-123	Spring, Air Valve, Updraft, H.Flow, Blue
	S2-41	Spring, Air Valve, Updraft, Waukesha, VHP RED
32	C1-32	Cover, Air Valve 600 / 600VF
33	S1-3	Screw 10-24X5/8 Sltdfil Sltdzn

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### MODULE COMPONENTS & ACCESSORIES

#### MIXERS

PART#	DESCRIPTION
AB1-30-23L	Mixer 600VF3 Updraft 59023L
<u>AB1-30-3*</u>	Mixer Assembly 600VF1
<u>AB1-30-3X*</u>	Mixer Assembly 600VF1
AB1-30-6	Mixer 600VF3 Updraft
<u>AB1-30-6S*</u>	Mixer 600VF3 Sidedraft
AB1-30-6SL*	Mixer 600VF3 Sidedraft .435 Ht
AB1-30-6X	Mixer 600VF3 Downdraft

#### THROTTLE BODIES

PART#	DESCRIPTION
AS5-38	Shaft Throttle 600VFD Assy
<u>AT2-18-3*</u>	Throttle Body Assy 600VFD
<u>AT2-18-573*</u>	Throttle Body 600VFD
AT2-67	T'Body, 600VF, 3.5", W/Lever

#### AIR HORN/INLET

PART#	DESCRIPTION
AA2-16	Air Horn 90Deg By 6" To 600
<u>AA2-22*</u>	In-line, Sand Cast 6.625"

#### GAS INLET

##### (BODY, PWR SCREW, JET, GASKETS & BOLTS)

PART#	DESCRIPTION
AB1-31	Gas Body
AB1-31-2	Gas Body, High BTU
<u>AB1-31-3*</u>	Gas Body, Low BTU

#### MIXTURE OUTLET

##### (BODY, FLY, BEARINGS, SHAFT, LVR & GASKETS)

PART#	DESCRIPTION
AT2-17	Throat Assy, Sae 4" Flange: 4"
AT2-67	T'Body, 600VF, 3.5", W/Lever

#### REPAIR KIT

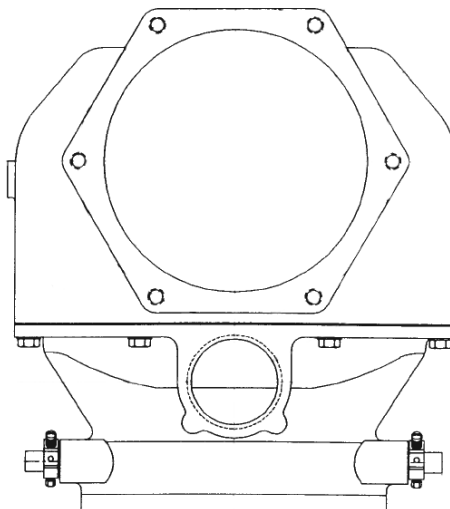
PART#	DESCRIPTION
RKD1-20-3	Rep.Kit600VF Diaph/Plate/Bush
RK-B3-43-1	Repair Kit, Bearing Seal Housing
RK-B3-479	Repair Kit (Inc. bearing, seal & sleeve)

#### GAS VALVE/JET KIT

##### (GAS VALVE, JET, SCREW, O-RING & LABEL)

PART#	DESCRIPTION
CKV2-21-3	600VF N/G
CKV2-21-4	Kit, VF 600 NG F/Back
<u>CKV2-50679-001*</u>	Kit, VF 600 Low BTU
CKV2-62	600VF Feedback Lean (Catalytic)
CKV2-63	600VF ULB Med. Flow
CKV2-64	600VF DG
<u>CKV2-64-3*</u>	Kit, VF 600 DG 500-650
CKV2-65	600VF LF 450-540 Stoich
<u>CKV2-69*</u>	600VF LFG (400Btu/Ft3)
CKV2-84	Kit, 600 VF Cat (336-6861)
<u>CKV2-87*</u>	Waukesha OEM SRS
CKV2-94	Conversion Kit, Feedback Rich
CKV2-95	Kit, VF 600 NG 850-900
CKV2-95-2	Kit, VF 600 NG 850-900
<u>CKV2-96*</u>	600VF Propane (Pos. Pressure)
CKV2-101	Kit, VF 600 DG
<u>CKV2-113*</u>	Kit, VF 600 NG 700-800
CKV2-116	Kit, 600 VF Conversion
<u>CKV2-118*</u>	Kit, 600 VF
<u>CKV2-125*</u>	Kit, VF 600 NG

## Model 600D Varifuel



### DESCRIPTION

The Model 600DVF is a duplex carburetor comprised of two Varifuel 600VF mixers mounted to a common throttle/gas inlet body for applications with airflow requirements up to 1600 CFM (7551 L/s). The Model 600VF Mixer is a concentric flow type air valve carburetor with a precision gas metering valve attached to the air valve. The air valve and gas valve motion is linear in relation to the volumetric flow. The air/fuel ratio is controlled by the adjustable power valve and the shape of the gas metering valve and the pressure from the gas regulator.

The gas valve and jet combinations are easily replaced to provide performance and emission levels as defined by each customer to meet various fuel and burn strategies. Gas valves and jets can be ordered in matching sets. These units are designed for 14,000 MTBF (mean time between failures). Advanced guide bushing material provides a more durable solution over the standard 600D carburetor.

The 600D Varifuel Mixer is not available as an assembly, but it is ordered in modular components to be assembled to the desired configuration.

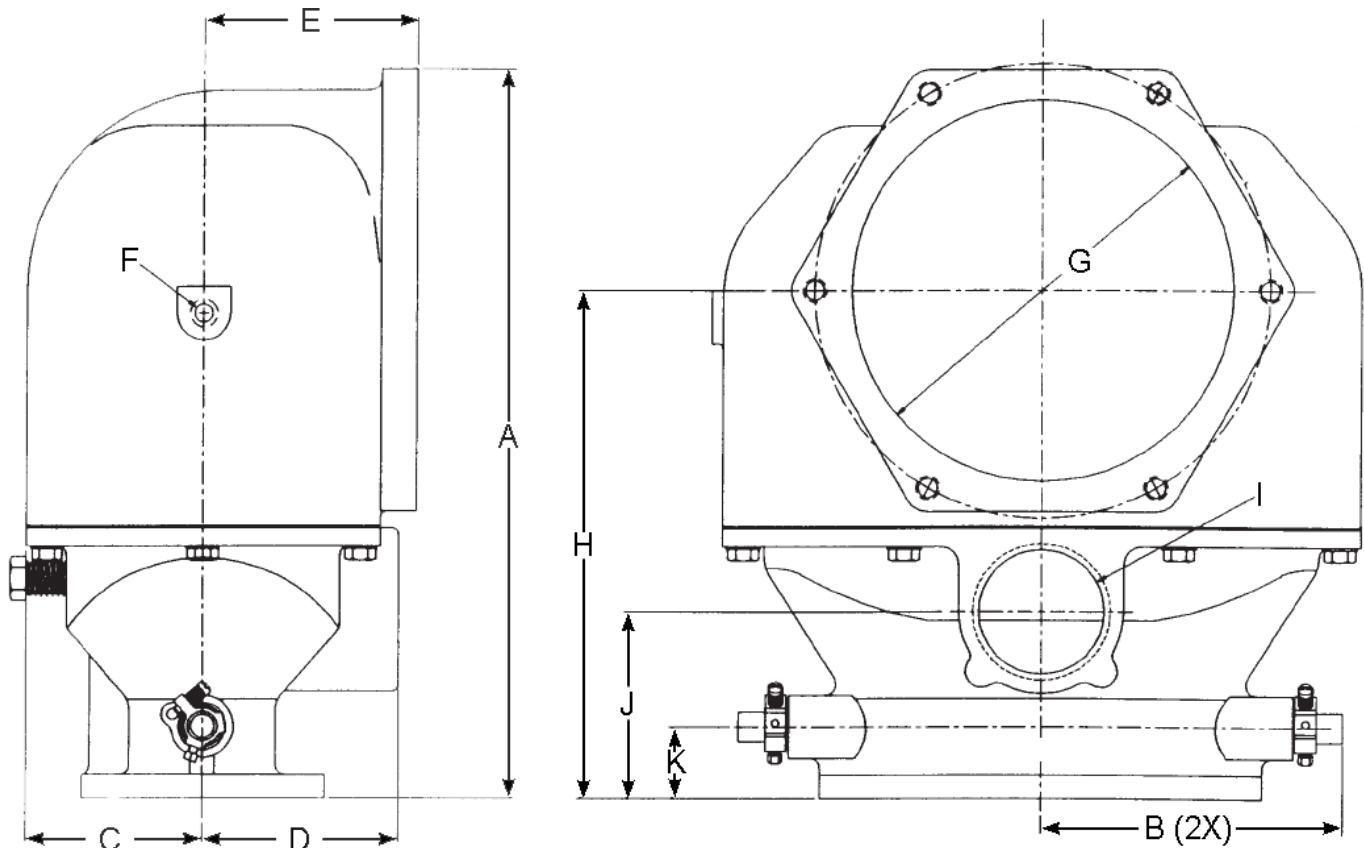
### SPECIFICATIONS

#### Fuel Type

LPG Vapor .....	90% + Propane
Natural Gas .....	85% + Methane
Digester Gas.....	56-72% Methane
Landfill Gas .....	45-56% Methane
Inlet Pressure.....	+5.0" w.c. (1.24 kPa) over Air Inlet (Idle Setting)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Various: Updraft, downdraft, sidedraft
Diaphragm Material .....	Fluorosilicone
HP/kW .....	1,000 HP (745.7 kW) @ 1600 CFM (7551 L/s) and 2.0" Hg manifold depression

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

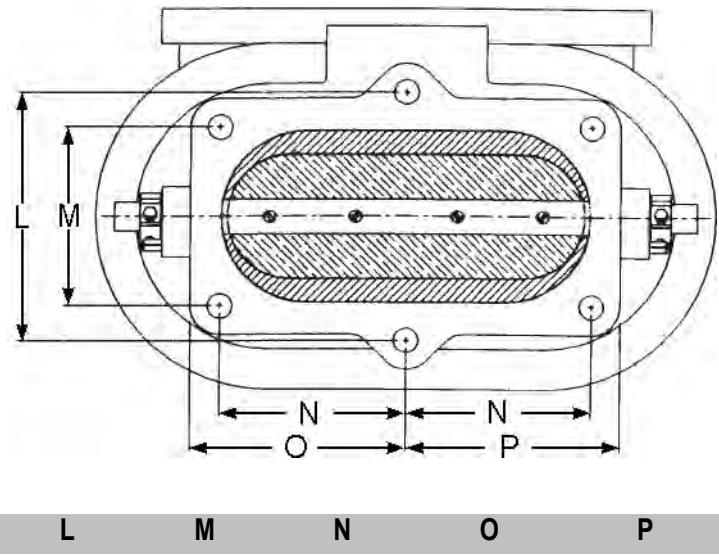
## DIMENSIONS



600D VARIFUEL CARBURETOR (SIDE DRAFT, T2-62 OR T2-18 SHOWN)

A	B	C	D	E	F	G	H	I	J
OVERALL HEIGHT	FLANGE WIDTH	CTR TO INLET	CENTER TO INLET	CENTER TO FLANGE	BALANCE INPUT	INLET DIA.	HEIGHT TO CTR AIR INLET	FUEL INLET NPT	HEIGHT TO CTR GAS INLET
15.31" (388.9mm)	6.3" (160.0mm)	3.75" (95.25mm)	4.12" (104.6mm)	6.13" (155.7mm)	.375 (9.53mm)	8.0" (203.0mm)	10.58" (268.7mm)	2.5" (63.5mm)	3.94" (100.0mm)

**DIMENSIONS (CONTINUED)**



L		M		N		O		P	
CENTER		END BOLT		END TO CENTER BOLT		END TO CENTER BOLT		END TO CENTER BOLT	
BOLT		SPACING		SPACING		SPACING		SPACING	
5.38"		3.88"		4.0"		4.63"		4.62"	
(136.6MM)		(98.5mm)		(101.6mm)		(117.6mm)		(117.3mm)	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### MODULE COMPONENTS & ACCESSORIES

#### MIXERS

PART#	DESCRIPTION
AB1-30-23L	Mixer 600VF3 Updraft 59023L
<u>AB1-30-3*</u>	Mixer Assembly 600VF1
AB1-30-3X*	Mixer Assembly 600VF1
AB1-30-6	Mixer 600VF3 Updraft
<u>AB1-30-6S*</u>	Mixer 600VF3 Sidedraft
<u>AB1-30-6SL*</u>	Mixer 600VF3 Sidedraft .435 Ht
AB1-30-6X	Mixer 600VF3 Downdraft

#### THROTTLE BODIES

PART#	DESCRIPTION
AS5-38	Assembly Shaft Throttle 600VFD
<u>AT2-18-3*</u>	Throttle Body Assy 600VFD
<u>AT2-18-573*</u>	Throttle Body 600VFD
AT2-67	T*Body, 600VF, 3.5", W/Lever

#### AIR HORN/INLET

PART#	DESCRIPTION
<u>AA2-17*</u>	Air Horn, Ingersoll-Rand 8SVG
<u>AA2-18*</u>	Air Horn, 8" dia. 90 degree (side)
AA2-62	Air Horn, 8" dia. 90 degree (end)

#### GAS VALVE/JET KIT

##### (GAS VALVE, JET, SCREW, O-RING & LABEL)

PART#	DESCRIPTION
CKV2-21-3	600VF N/G
CKV2-62	600VF Feedback Lean (Catalytic)
CKV2-63	600VF UIb Med. Flow
CKV2-64	600VF DG
CKV2-65	600VF LFG
<u>CKV2-69*</u>	600VF LFG (400BTU/FT3)
CKV2-94	Conversion Kit, Feedback Rich
<u>CKV2-96*</u>	600VF Propane (Pos. Pressure)

#### REPAIR KIT

PART#	DESCRIPTION
RKD1-20-3	Rep.Kit600VF Diaph/Plate/Bush
RK-B3-43-1	Repair Kit, Bearing Seal Housing
RK-B3-479	Repair Kit (Inc. bearing, seal & sleeve)

#### (BODY, POWER SCREW, JET, GASKETS & BOLTS)

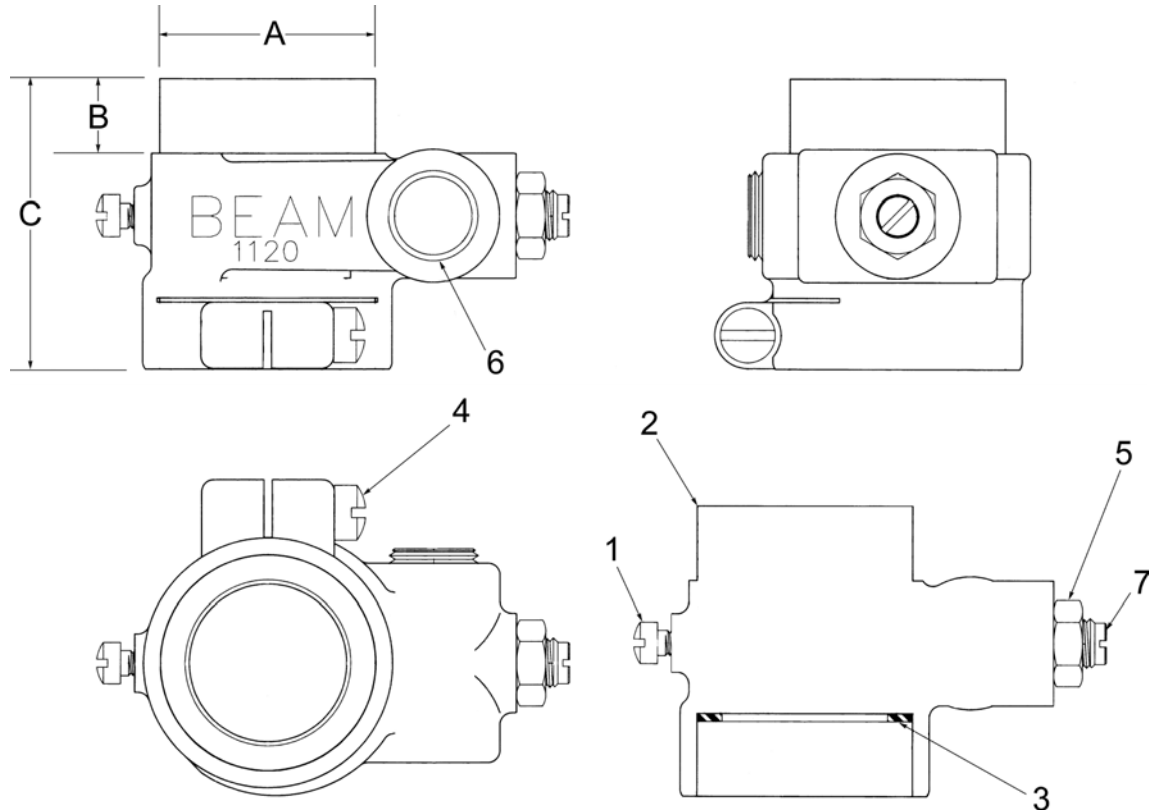
PART#	DESCRIPTION
AB1-31	Gas Body
AB1-31-2	Gas Body, High BTU

# Fuel Metering

Carburetor Adapters.....	130
Venturis .....	136
Choice Fuel® Custom Outlet Fittings.....	141
130 Series Load Blocks.....	142
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Vacuum Switches .....	146
Commander OZ Air/Fuel Control Unit.....	147
Fuel Control Parts.....	149
In Line Power Valves AB1-16 / AB1-32 .....	150
FCV Solenoid Kit.....	151
Fuel Control Valves.....	152
Regulator Control Valves .....	153

## Carburetor Adapters

1120 / 1770



		A	B	C
PART#	DESCRIPTION	DIAMETER	HEIGHT (NECK)	OVERALL HEIGHT
<u>1120-A*</u>	Carb Adapter Less Venturi	1.625" 41.3mm	14.3mm (.562")	55.5mm (2.187")
<u>1770-S*</u>	Carb Adapter w/O Venturi	1.82" (46.2mm)	14.3mm (.562")	55.5mm (2.187")

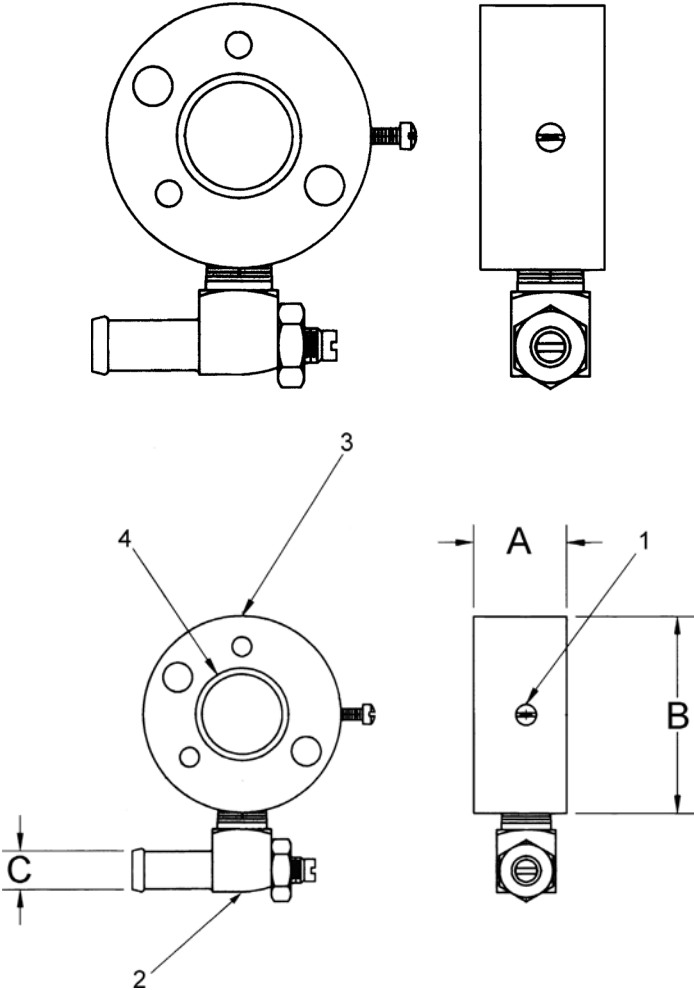
### COMPONENT LIST

ITEM #	PART #	DESCRIPTION
1	NSS	Slotted 10-32UNF-2A
2	NSS	Carburetor Adapter
3	NSS	Gasket, Carburetor Airhorn
4	NSS	Screw, machine, Filister Head
5	NSS	Nut, Jam (3/8-24UNF-2B)
6	NSS	Plug, Set Screw 3/8 NPT
7	NSS	Screw, Power Adjustment

**NSS = Not Serviced Separately**



1450A

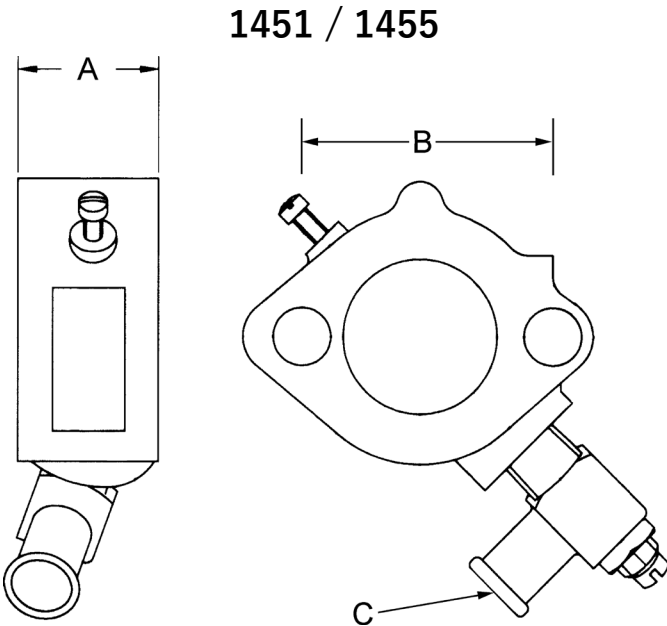


DIMENSIONS

		A	B	C
PART#	DESCRIPTION	HEIGHT (NECK)	DIAMETER	OD
<u>1450A*</u>	Carb Adapter	.94" (23.8mm)	2.0" (51mm)	0.5" (12.7mm)

COMPONENTS

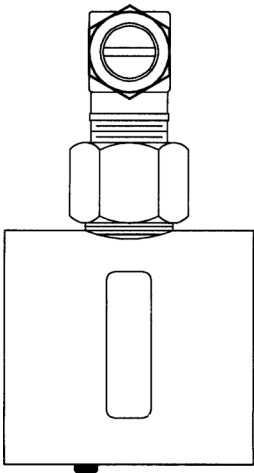
ITEM#	PART#	DESCRIPTION
1	NSS	Screw, Venturi Set
2	NSS	Elbow-Power Adjustment
3	NSS	Body, Carburetor Adapter
4	NSS	Venturi



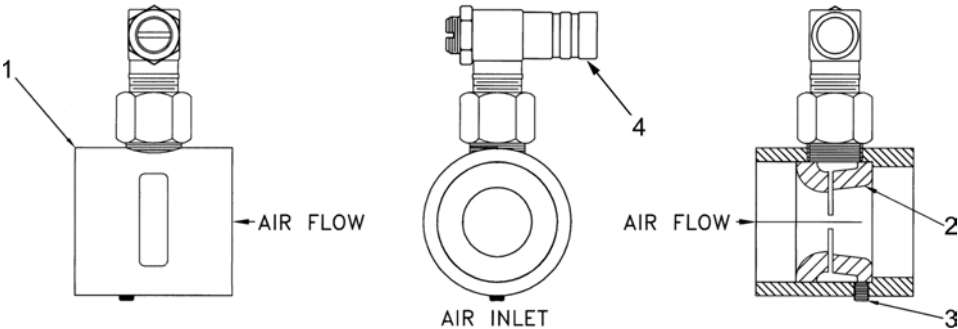
DIMENSIONS

		A	B	C
PART#	DESCRIPTION	HEIGHT	HOLE SPACING	OD
<u>1451*</u>	Carb Adapter Less Venturi	1.14" (29.0mm)	2.0" (50.8mm)	0.5" (12.7mm)
<u>1455*</u>	Carb Adapter Less Venturi	1.13" (28.6mm)	N/A	0.5" (12.7mm)

200-1330-1



DIMENSIONS



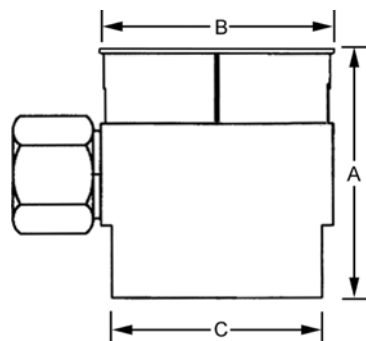
ITEM#	PART#	DESCRIPTION
1	NSS	2" Dia. Hose Adapter
2	NSS	Venturi, #30
3	NSS	Screw, 10-32 x 1/4 Torx Zinc
4	NSS	Power Adjustment Elbow, 5/8 Hose x 3/8 NPT

# Carburetor Adapters

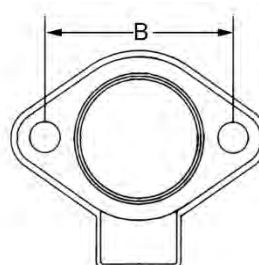
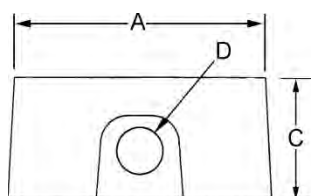
## Fuel Metering



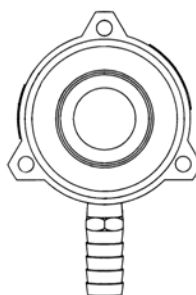
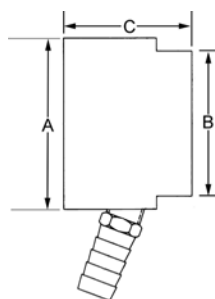
201 / 204



ITEM	DESCRIPTION	A HEIGHT	B INLET OD	C OUTLET OD	D INLET NPT	VENTURI
<u>200-1330*</u>	Carb Adapter, Hose 2" OD x .375"	2.13" (54.1mm)	2.0" (50.8mm)	2.0" (50.8mm)	3/8"	#30
<u>201-1130*</u>	Carburetor Adapter, Air Horn	2.13" (54.1mm)	1.81 (46.0mm)	2.0" (50.8mm)	3/8"	#30
<u>204-44*</u>	Carburetor Adapter	2.725" (69.9mm)	1.57" (40.0")	2.0" (50.8mm)	1/4"	#24
<u>204-67*</u>	Adapter, Air cleaner mounting, 1.375" x 1.737", 1/4 NPT, 1.58	2.725" (69.9mm)	1.57" (40.0")	2.0" (50.8mm)	1/4"	#26

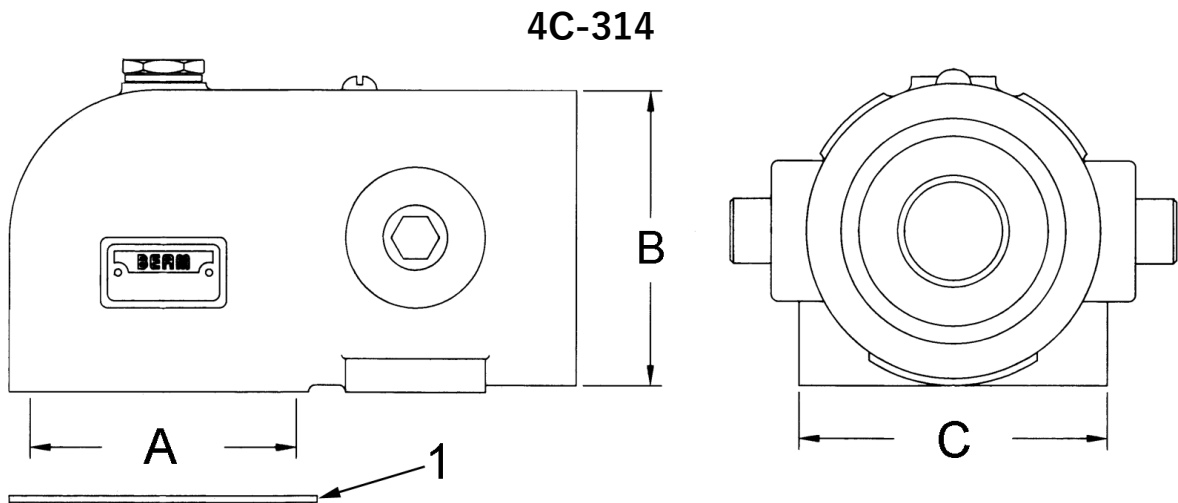


PART#	DESCRIPTION	A INLET OD	B HOLE SPACING	C HEIGHT	D INLET NPT	VENTURI
<u>204-27*</u>	Adapter, Flange mounting (2), 1.375" X 1.12" 1/4 NPT	1.72" (43.7mm)	2.0" (50.8mm)	1.25" (31.8mm)	1/4"	#22



PART#	DESCRIPTION	A INLET OD	B OUTLET OD	C HEIGHT	D INLET	VENTURI
<u>204-36*</u>	Adapter, Air cleaner mounting, 2.562" X 1.812", 1/4 NPT	2.05"	2.6"	1.81	1/4" NPT 1/2" HOSE BARB	#26

Note: Where applicable, any product underlined and in **red text** is obsolete. Visit page 6 for support.



**DIMENSIONS**

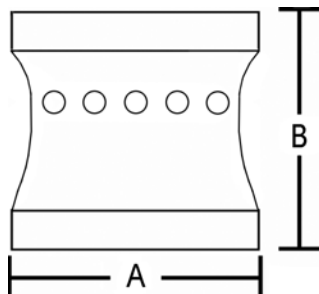
PART#	DESCRIPTION	A	B	C
		OUTLET ID	INLET OD	WIDTH
<u>4C-314*</u>	CARBURETOR ADAPTER	2.62" 966.5mm	2.0" (50.8mm)	2.75" (69.9mm)

**COMPONENTS**

ITEM#	PART#	DESCRIPTION
1	2G-113B*	Gasket, Carburetor Airhorn

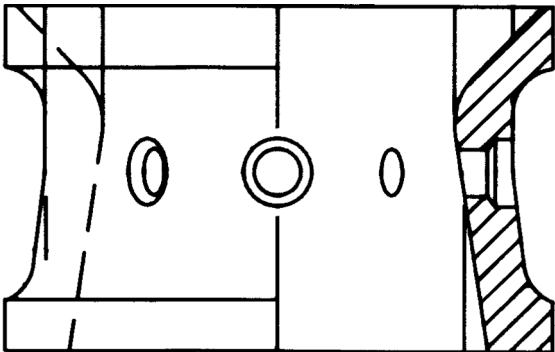
## Venturis

### 111 / 113 Series

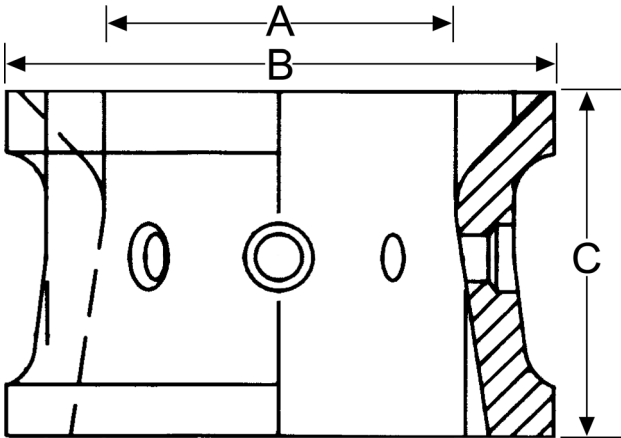


	A	B	C
PART #	DIAMETER O.D.	OVERALL HEIGHT	VENTURI
<u>111-20*</u>	23.8 mm (.9375")	19 mm (.75")	20
<u>113-18*</u>	31.7 mm (1.25")	31.7 mm (1.25")	18
<u>113-20*</u>	31.7 mm (1.25")	31.7 mm (1.25")	20
<u>113-22*</u>	31.7 mm (1.25")	31.7 mm (1.25")	22
<u>113-26*</u>	31.7 mm (1.25")	31.7 mm (1.25")	26

134 Series

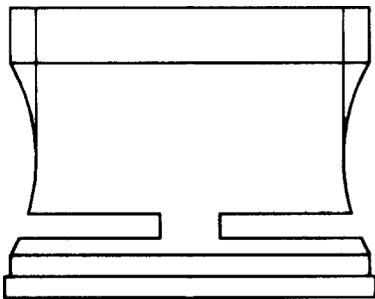


DIMENSIONS

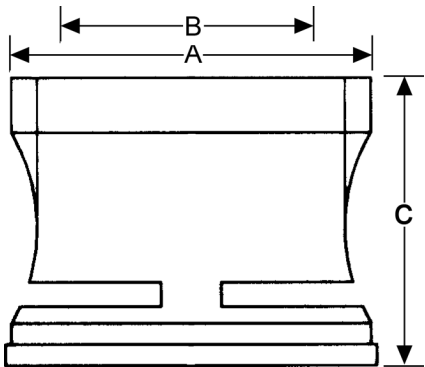


	A	B	C
	INSIDE	OUTSIDE	
PART #	DIA.	DIA.	HEIGHT
<u>134-28*</u>	0.875 (22.2mm)	1.5" (38.1mm)	0.95 (24.1mm)

220-00-08



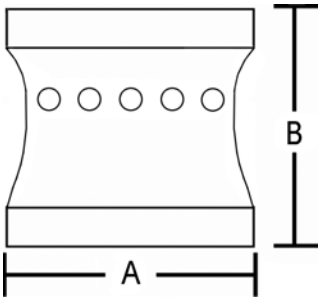
DIMENSIONS



	A	B	C
	OUTSIDE		
PART#	DIA.	INSIDE DIA.	HEIGHT
<u>225A-34*</u>	.935" (23.75mm)	.625" (15.88mm)	.75" (19.05mm)

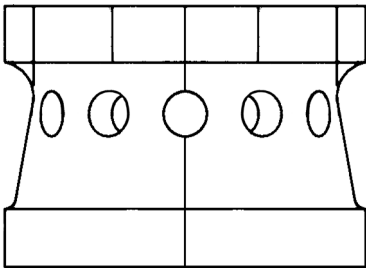


222 Series

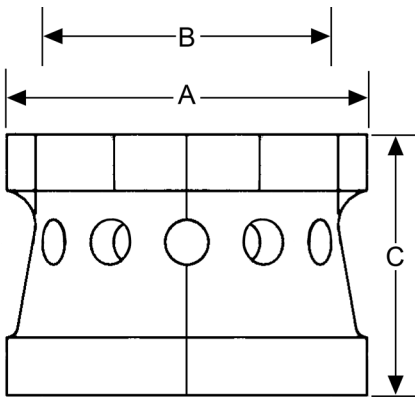


	A	B	C	D
PART #	OUTSIDE DIA.	OVERALL HEIGHT	VENTURI	MATERIAL
<u>222-00-10*</u>	34.9 mm (1.375")	25.4 mm (1.00")	10	Aluminum
<u>222-00-14*</u>	34.9 mm (1.375")	25.4 mm (1.00")	14	Aluminum

225A-34



DIMENSIONS

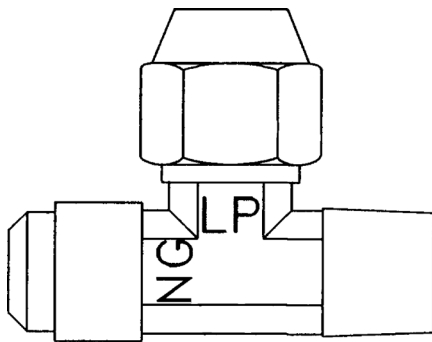


	A	B	C
OUTSIDE			
DIA.	INSIDE DIA.	HEIGHT	
<u>225A-34*</u>	1.99"	1.062"	1.44"
	(50.78mm)	(26.98mm)	(36.6mm)

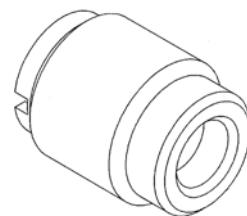
## Choice Fuel® Custom Outlet Fittings

### DESCRIPTION

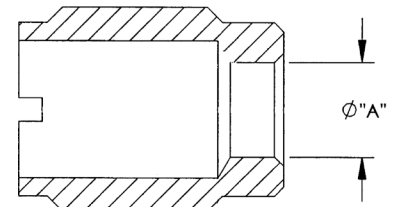
The Choice Fuel® Custom Outlet Fitting was designed with the installer in mind. By easily moving the vapor hose coming from the regulator from one leg of the tee to the other, the fuel system can be run on either LPG or Natural Gas. Any combination of jet sizes can be used for a wide range of engine displacement for proper fuel metering to desired air/fuel ratios for either fuel.



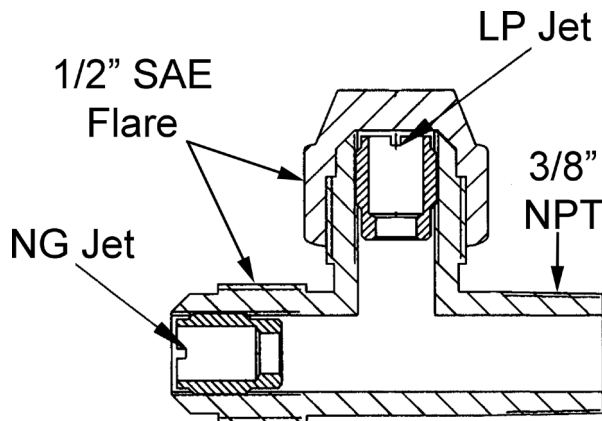
Custom Fuel DUAL Outlet Tee,  
P/N AF4-31175-XXX. View from the outside.  
Note the fuel labels: LP=LPG; NG=Natural  
Gas



Jet, Isometric View



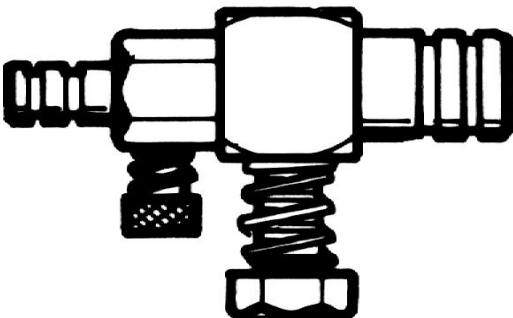
Cutaway of Jet, depicting  
the orifice diameter ØA (in  
millimeters).



Cutaway view showing the jets installed.

PART NO.	Ø "A" mm	PART NO.	Ø "A" mm
<u>J1-30655-025*</u>	4.2	<u>J1-30655-021*</u>	5.9
J1-30655-026	4.3	<u>J1-30655-022*</u>	6.0
<u>J1-30655-027*</u>	4.4	<u>J1-30655-023*</u>	6.1
<u>J1-30655-028*</u>	4.5	<u>J1-30655-024*</u>	6.2
J1-30655-029	4.6	<u>J1-30655-019*</u>	6.3
<u>J1-30655-030*</u>	4.7	<u>J1-30655-010*</u>	6.4
<u>J1-30655-031*</u>	4.8	<u>J1-30655-011*</u>	6.5
J1-30655-032	4.9	<u>J1-30655-012*</u>	6.6
<u>J1-30655-033*</u>	5.0	<u>J1-30655-003*</u>	6.7
J1-30655-004	5.1	<u>J1-30655-001*</u>	6.8
<u>J1-30655-005*</u>	5.2	<u>J1-30655-013*</u>	6.9
J1-30655-006	5.3	<u>J1-30655-014*</u>	7.0
J1-30655-002	5.4	<u>J1-30655-015*</u>	7.1
<u>J1-30655-007*</u>	5.5	<u>J1-30655-016*</u>	7.2
<u>J1-30655-008*</u>	5.6	<u>J1-30655-017*</u>	7.3
<u>J1-30655-009*</u>	5.7	<u>J1-30655-018*</u>	7.4
<u>J1-30655-020*</u>	5.8	<u>J1-30655-034*</u>	8.0

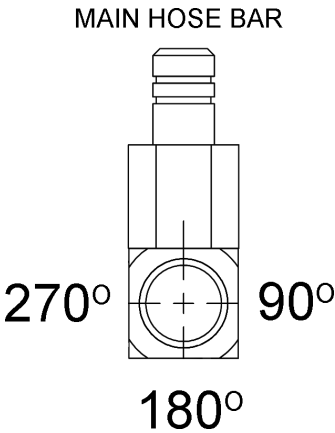
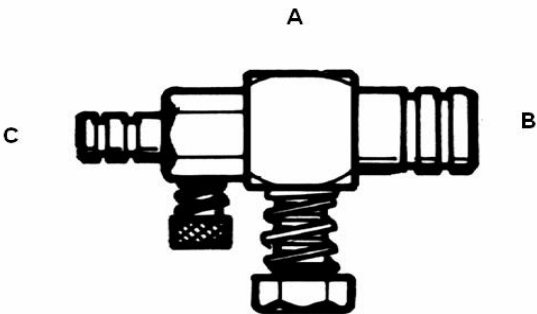
130 Series Load Blocks



DESCRIPTION

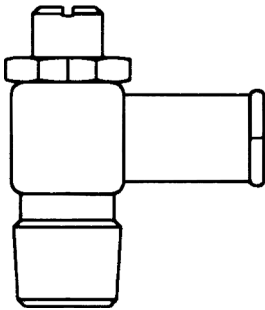
There are different styles of load blocks (with and without idle systems), to match your needs, when using fuel tubes or carburetor adapters that require a separate load block. These load blocks offer you great versatility, as they can be mounted in any direction either at the carburetor or on the fuel regulator.

DIMENSIONS

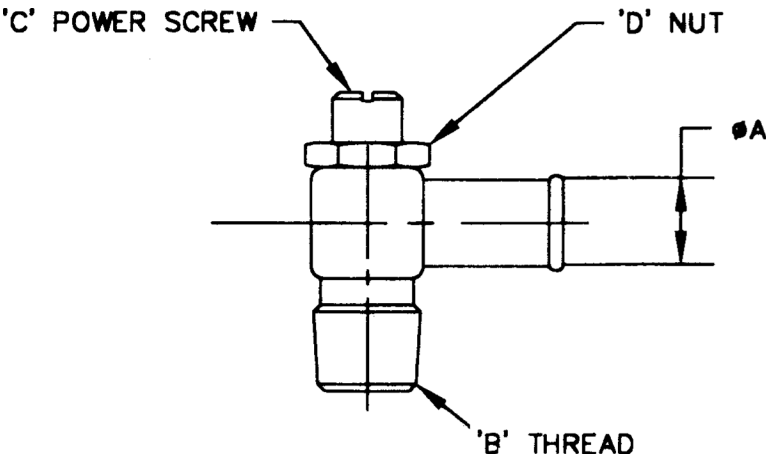


LOAD BLOCKS				
A		B	C	POSITION
PART NUMBER	THREAD SIZE	TUBE SIZE	TUBE SIZE	
<u>133-03*</u>	1/4 NPT	3/8"	1/4"	180°
<u>133-08*</u>	1/4 NPT	1/2"	1/4"	90°
<u>133-17*</u>	1/4 NPT	3/8"	1/4"	90°

# Power Adjustment Elbow



## DIMENSIONS



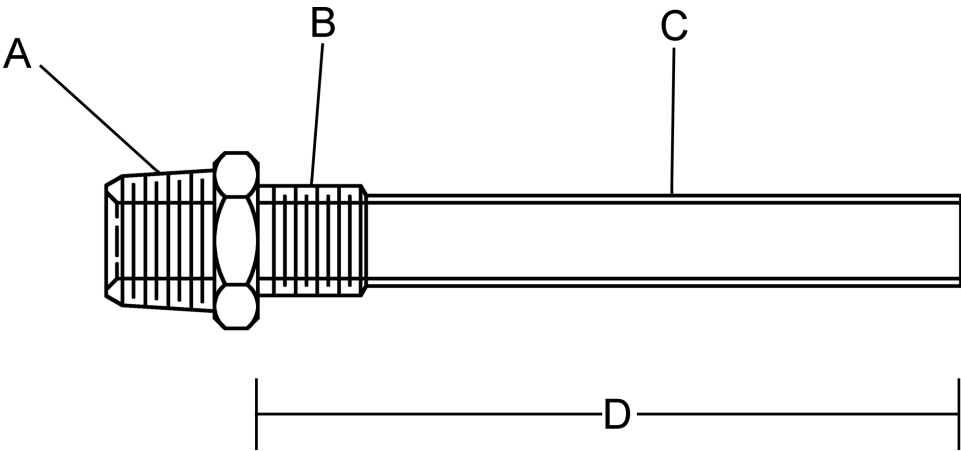
	A	B	C	D	E
ITEM #	DIA.	THREAD SIZE	POWER SCREW	NUT	MATERIAL
<u>4H-204B-1*</u>	0.5"	1/4" NPT	NSS	NSS	BRASS
<u>4H-305Z*</u>	0.63"	1/2" NPT	NSS	NSS	ZINC

# 100 Series Fuel Tubes

Fuel Metering

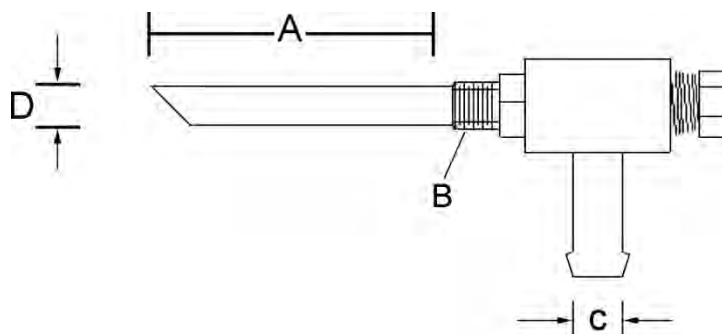


## 100 Series Fuel Tubes



PART #	CONNECTOR THREAD (NPT)	ATTACHING THREAD	TUBE DIAMETER (O.D.)	TUBE LENGTH
<u>100-29*</u>	1/8"	8mm	0.26"	2.03"
<u>100-30*</u>	1/8"	8mm	0.26"	2.12"

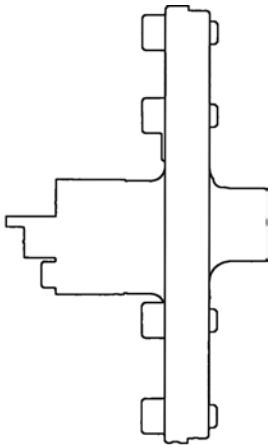
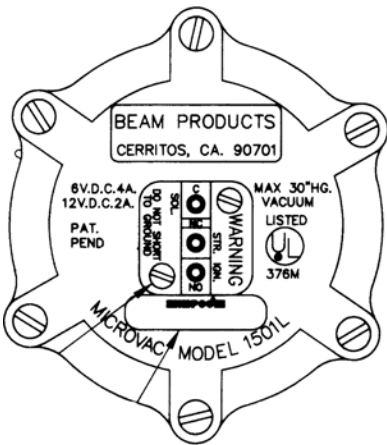
## 2F Series Spud in Tubes



	A	B	C	D
		THREAD	INLET TUBE	
PART #	TUBE LENGTH	SIZE	DIA.	TUBE DIA.
<u>2F-125*</u>	50.8 mm (2.0")	3/8"-24	9.5 mm (.375")	7.9 mm (.312")
<u>2F-247*</u>	63.5 mm (1.25")	5/16"-25	9.5 mm (.375")	5.7 mm (.228")
<u>2F-256*</u>	63.5 mm (1.25")	5/16"-26	9.5 mm (.375")	5.7 mm (.228")
<u>2F-275*</u>	53.9 mm (2.125")	5/16"-27	9.5 mm (.375")	5.7 mm (.228")
<u>2F-275A*</u>	53.9 mm (2.125")	5/16"-28	9.5 mm (.375")	5.7 mm (.228")

PART #	DESCRIPTION
<u>2F-249*</u>	GLAND NUT

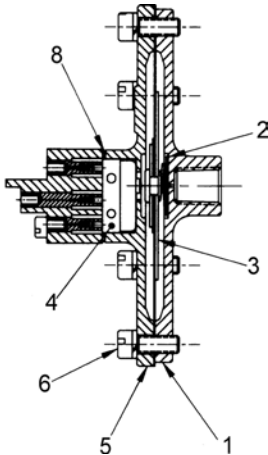
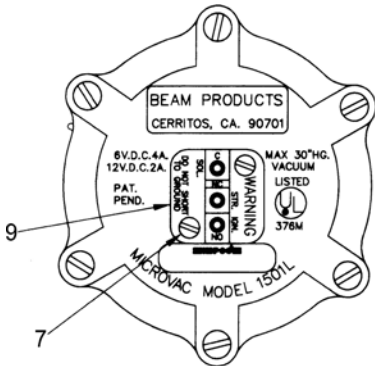
Vacuum Switches



PART#	DESCRIPTION
<u>1501-28A*</u>	Microswitch, W/Match Spring
<u>1501-PA*</u>	Vac Switch Kit W/Wires & Term
<u>1501-RK*</u>	Repair Kit For 1501-L

P/N: 1501-L

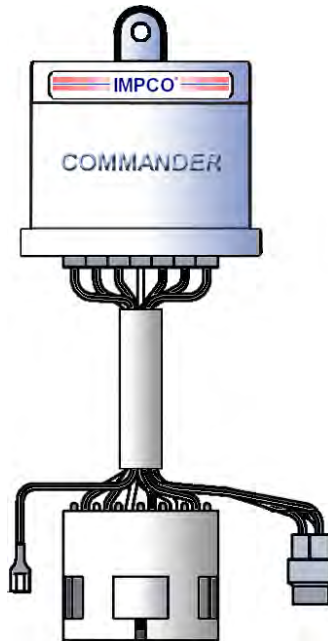
Certification: UL (AU1682)



ITEM#	PART#	DESCRIPTION
1	NSS	Cover, Back
2	NSS	Spring, compression
3	NSS	Diaphragm-Microvac
4	NSS	Casting, Front Cover
5	NSS	Screw, 10-32 UNF 2A .50"L
6	NSS	Screw, 10-32 UNF 2A .62"L
7	NSS	Screw 6-32 UNF .44L
8	NSS	Shim, Microswitch
9	NSS	Adapter, Switch Terminal



## Commander OZ Air/Fuel Control Unit



IMPCO ECM Commander

### DESCRIPTION

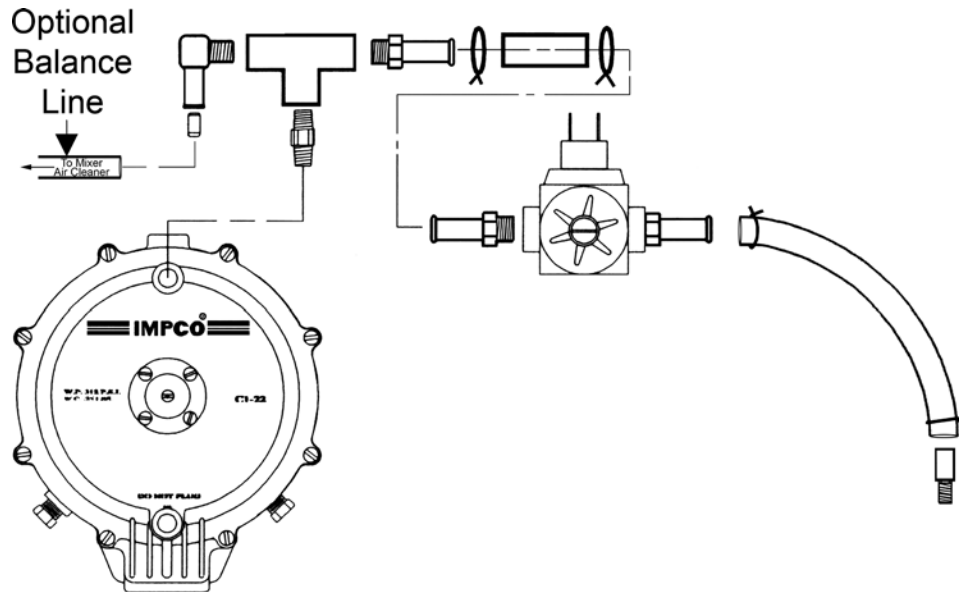
The Commander is an advanced digital closed-loop fuel control processor for alternative fuels. The EK-CDP-1 Kit contains all of the electrical components required to convert your IMPCO open-loop fuel system to a state-of-the-art closed loop fuel control technology and supplies the required electrical parts to convert IMPCO open-loop fuel systems to closed-loop feedback control. The Commander controller is designed to reduce overall exhaust emissions without the use of catalytic converters. The compact construction provides a sealed enclosure for operation in harsh industrial engine environments. The small electronic module controls fuel pressure based on engine speed and rich/lean status from the oxygen sensor. The Commander's microprocessor reads and calculates this data to provide a precise stoichiometric air/fuel ratio. The IMPCO Commander delivers consistent exhaust emissions, drivability and fuel economy at a reasonable cost. The controller is compatible with all IMPCO feedback mixers.

MODEL/SERIES CARBURETOR	RECOMMENDED AIR GAS VALVE
55 Series	AV1-14925 with "O" Series type converter.
100/125 Series	AV1-1447-2
125M-10 Series, Dual Fuel	<u>AV1-1447-4*</u>
200/225 Series	AV1-1245 & AV1-1245-2
300A 20 Series	<u>V2-49*</u>
300A 50/70 Series	<u>AV2-50*</u>
425 Series	<u>AV1-1651-2*</u>

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### COMPONENTS

PART#	DESCRIPTION	QTY
<u>EK-CDP-1*</u>	OZ Commander Kit	1
<u>CDP-1DX-4*</u>	Microprocessor 4Cyl	1



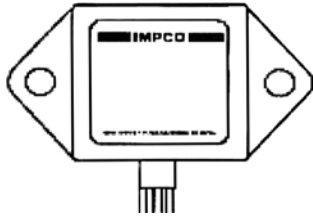
Typical Setup for a Commander

#### EK-CDP-1 COMPONENT PART LIST

TEM#	PART#	DESCRIPTION	QTY
1	NSS	Controller, CDPOZ Electronic	1
2	NSS	Wire Harness Assay, Commander	1
3	NSS	Oxygen Sensor Boss 1018	1
4	NSS	Oxygen Sensor With Connector	1
5	NSS	Jet, Feed Back Bleed	1
6	F4-12	Fitting, 1/8" NPT 3/8" Hose 90El Nyl	1
7	NSS	Fitting, 1/8" NPT Female Tee Brass	1
8	NSS	Hose, 3/8" ID 2"L Fuel/Oil	1
9	NSS	Clamp, Hose, .69" OD	2
10	NSS	FCV Solenoid Assay, IMPCO	1
11	NSS	Fitting, 1/8" NPT 3/8" Hose Brass	2
12	NSS	Hose, Vacuum 1/4" ID 4' Length	1
13	NSS	Fitting, 1/4" Unf 1/4" Hose Vac Nip	1
14	NSS	Fitting, 1/8" NPT 1/4" Hose Nip Brass	1
15	NSS	Fitting, 1/8" NPT Hex Nip Brass	1

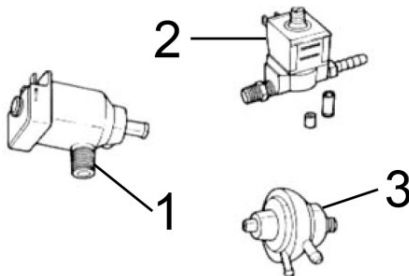
## Fuel Control Parts

### FUEL CONTROL PROCESSORS



ITEM #	DESCRIPTION
<a href="#"><u>EK-CDP-1</u></a>	Commander Kit
<a href="#"><u>CDP-1DX-4</u></a>	Microprocessor 4 Cyl.

### SOLENOIDS, SENSORS & FUEL CONTROL PARTS



ITEM#	PART#	DESCRIPTION
1	SV	Valve, Electric Solenoid Start
2	FCV*	Fuel Ctrl Valve, Comp. Feedback (Also see page on FCV Solenoid Kit)
3	VPV*	Vacuum Power Valve

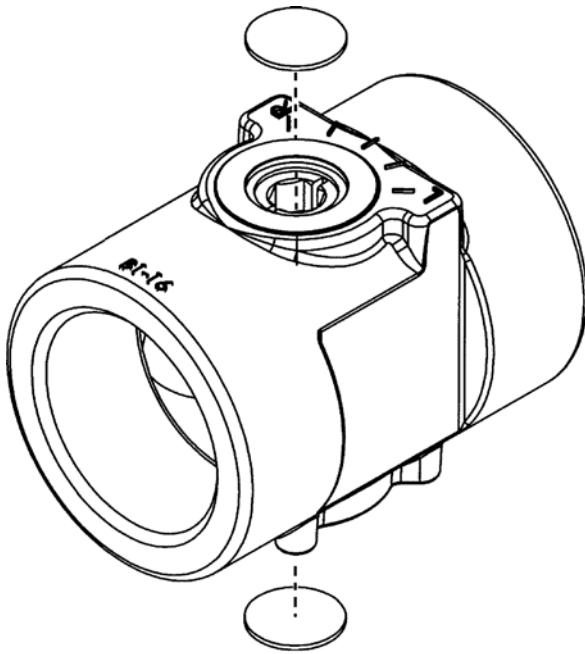
\*Kit HK-54702-001 is available which includes the FCV valve and the components necessary to replace P/N VCS. Refer to TSB-196.

### MIXTURE CONTROL OPTIONS

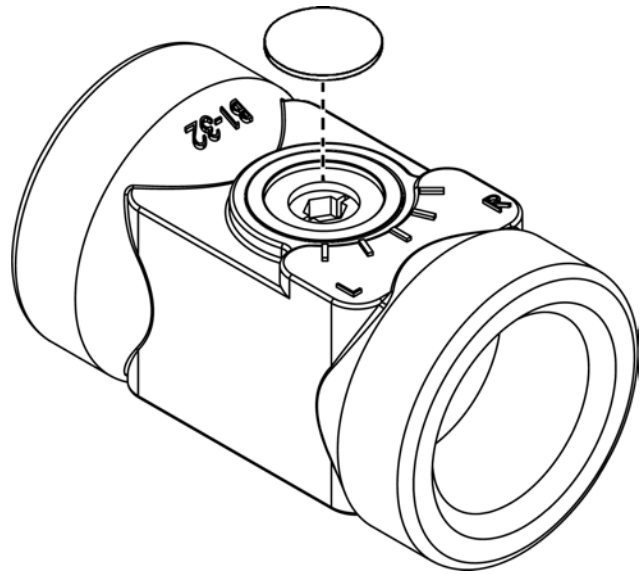
ITEM #	DESCRIPTION
<a href="#"><u>AB1-16*</u></a>	Line Load Adjuster-Cat
<a href="#"><u>AB1-32*</u></a>	Auxiliary line power adjuster, 1 NPT
<a href="#"><u>AB1-54*</u></a>	Gas metering valve Todd meter, 1 NPT
<a href="#"><u>AC1-74*</u></a>	Tower ass'y, adjusting, for PEV, PJ & PK regulators
J1-21	Jet, 2.5 mm (0.100"), feedback bleed
<a href="#"><u>R1-29*</u></a>	Ring, shim, 100 series mixers, to lean fuel mixtures
<a href="#"><u>R1-30*</u></a>	Ring, shim, 200 series mixers, to lean fuel mixtures
<a href="#"><u>S2-35*</u></a>	Spring, JB/JK/Cobra series, Neg. 0.37 kPa (Neg. 1.50" H2O)
S2-37	Spring, secondary, PE, 0.92-1.6 kPa (3.7-6.5" H2O), brown
S2-38	Spring, JO/KO/Cobra series, Neg. 0.12 kPa (Neg. 0.50" H2O), orange
<a href="#"><u>S2-106*</u></a>	Spring, regulator, 0.50-0.70 kPa (2.0-2.8" H2O), zinc
<a href="#"><u>S2-109*</u></a>	Spring, regulator, PEV, 0.67-0.96 kPa (2.7-3.85" H2O), white
<a href="#"><u>V3-30958*</u></a>	Valve, Check Diaphragm
<a href="#"><u>AW-25412*</u></a>	Fuel Switch Assy (Ford QVM)

## In Line Power Valves AB1-16 / AB1-32

Both AB1-16 and AB1-32 include internal O-ring seals for pressure ratings up to 30 psig and are available with tamper proof plugs for compliance with tamper resistant applications.



AB1-16 Shown with Tamper Resistant Plugs

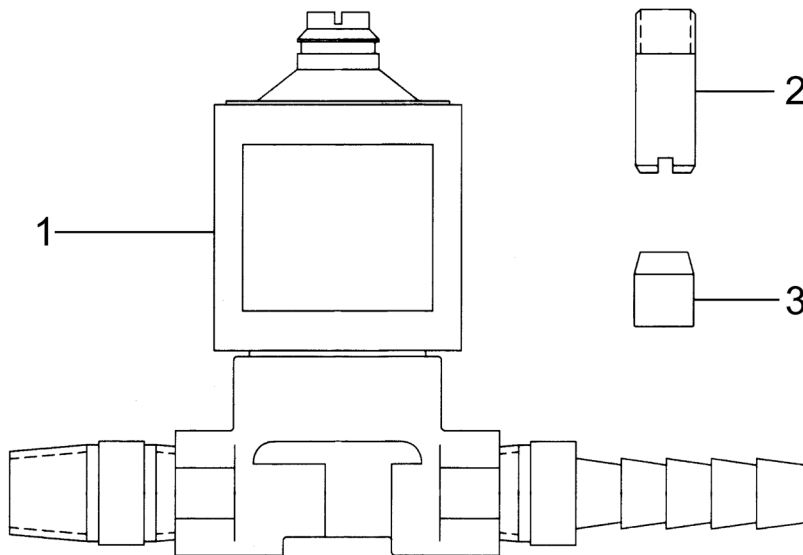


AB1-32 Shown with Tamper Resistant Plug

The AB1-16 valve can be adjusted using a 5/16" or 8mm hex key from either the top or bottom of the valve. The AB1-32 valve is adjusted using a 6mm hex key from the top. Both valves are available with or without the tamper resistant plug. Refer to the following table for features, plugs and part number ordering information:

Description	Part Number	Inlet & Outlet Ports	Replacement Tamper Resistant Plugs	Qty of Plugs Included
In Line Power Valve	AB1-16	1 1/4" Female NPT	P3-17956-20	0
In Line Power Valve, Tamper Resistant	AB1-16-2			2
In Line Power Valve	AB1-32	1" Female NPT		0
In Line Power Valve, Tamper Resistant	AB1-32-2			1

## FCV Solenoid Kit (obsolete)



### DESCRIPTION

The FCV Solenoid Kit is a 12 VDC valve used to control vacuum supplied between the regulator vent and the air valve vacuum port. It is typically used with an IMPCO Commander Control unit in a closed loop system.

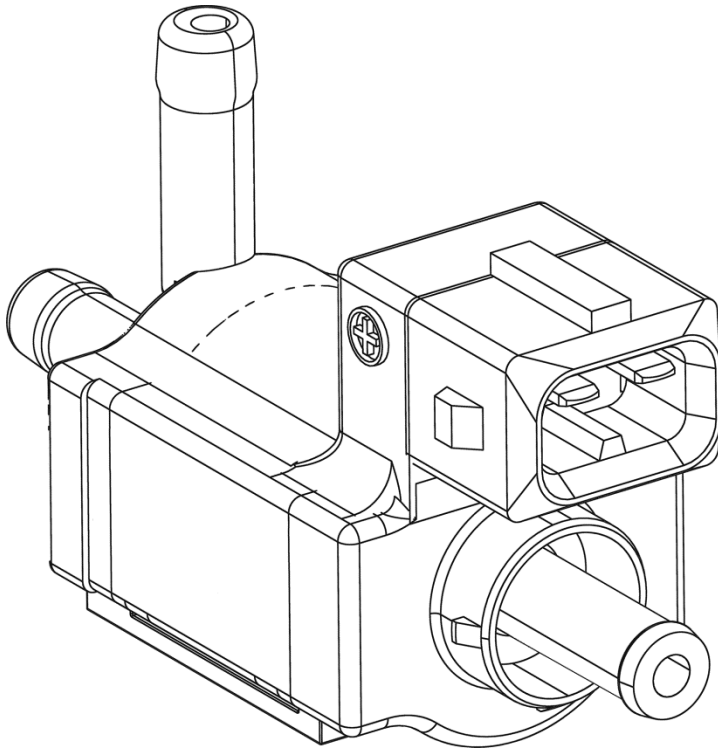
ITEM#	PART#	DESCRIPTION
1	FCV-7	Fuel Control Valve Solenoid

### ACCESSORIES

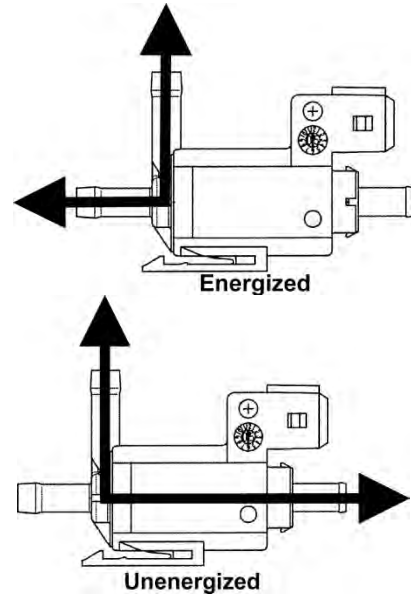
ITEM#	PART#	DESCRIPTION
2	F4-2	Fitting 1/4" 28 to 1/4" hose
3	J1-21	Feed Back Bleed

### Fuel Control Valves

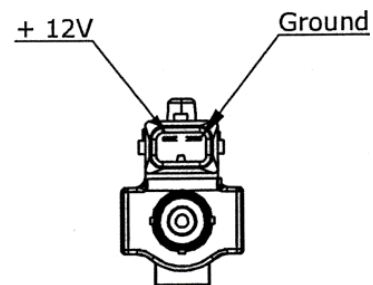
Kit (P/N HK-54702-001) includes a new valve (P/N FCV-54700-001) and the hardware necessary to replace the Vacuum Control Solenoid Valve, IMPCO P/N VCS (no longer available). The specifications for the new valve are shown below:



Fuel Control Valve  
P/N: FCV-54700-001



Flow when energized and de-energized

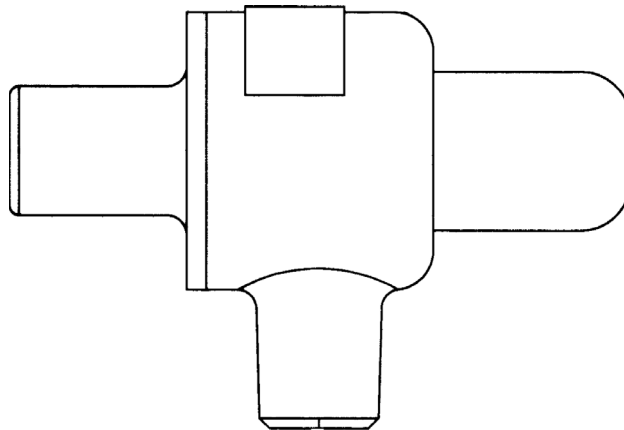


*End view, showing the polarity of the connector pins*

### SPECIFICATIONS

Voltage .....	12V Nominal; Range: 10.8-16V
Resistance.....	23.0 +/-1. 2Ω
Current .....	≤0.72A @ 12V, -40° C/F 100% duty cycle
Operating Temperature Range.....	-22° to 266° F (-30° to 130° C)
Vibration Resistance .....	Max 6g @ 20-350Hz
Pressure Maximum.....	4.3 psi (30 kPa)(Rated on vertical Hose Nipple only)
Hose Nipple Diameter.....	6.0mm (all three)

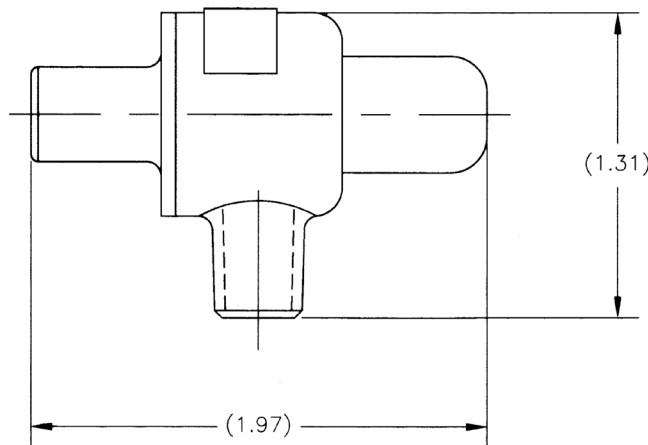
### Regulator Control Valves



**P/N:** RCV-15834

The regulator check valve is designed to accelerate the movement of the regulator diaphragm on closed loop applications in order to ensure sufficient fuel for high load and/or high transient throttle requirements. This device is particularly useful to help prevent induction backfire.

### DIMENSIONS

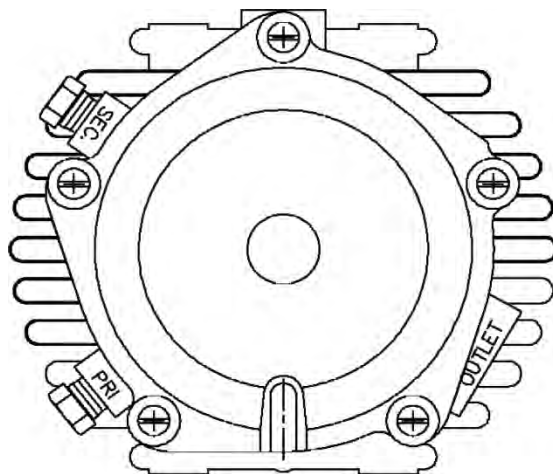


# Regulators

Model AHR50-D .....	155
11A17-001 .....	157
Model T52 .....	160
Model KN .....	162
2KN / 3KN Module .....	165
Model 202A .....	168
Model T60 .....	170
Model J .....	175
Model PJ .....	179
COBRA .....	183
P-COBRA .....	187
Model C250A .....	191
Model 120A .....	195
Model L .....	198
Model E & PE .....	202
Model EV & PEV .....	208
Model IMP .....	215



## Model AHR50-D (obsolete)



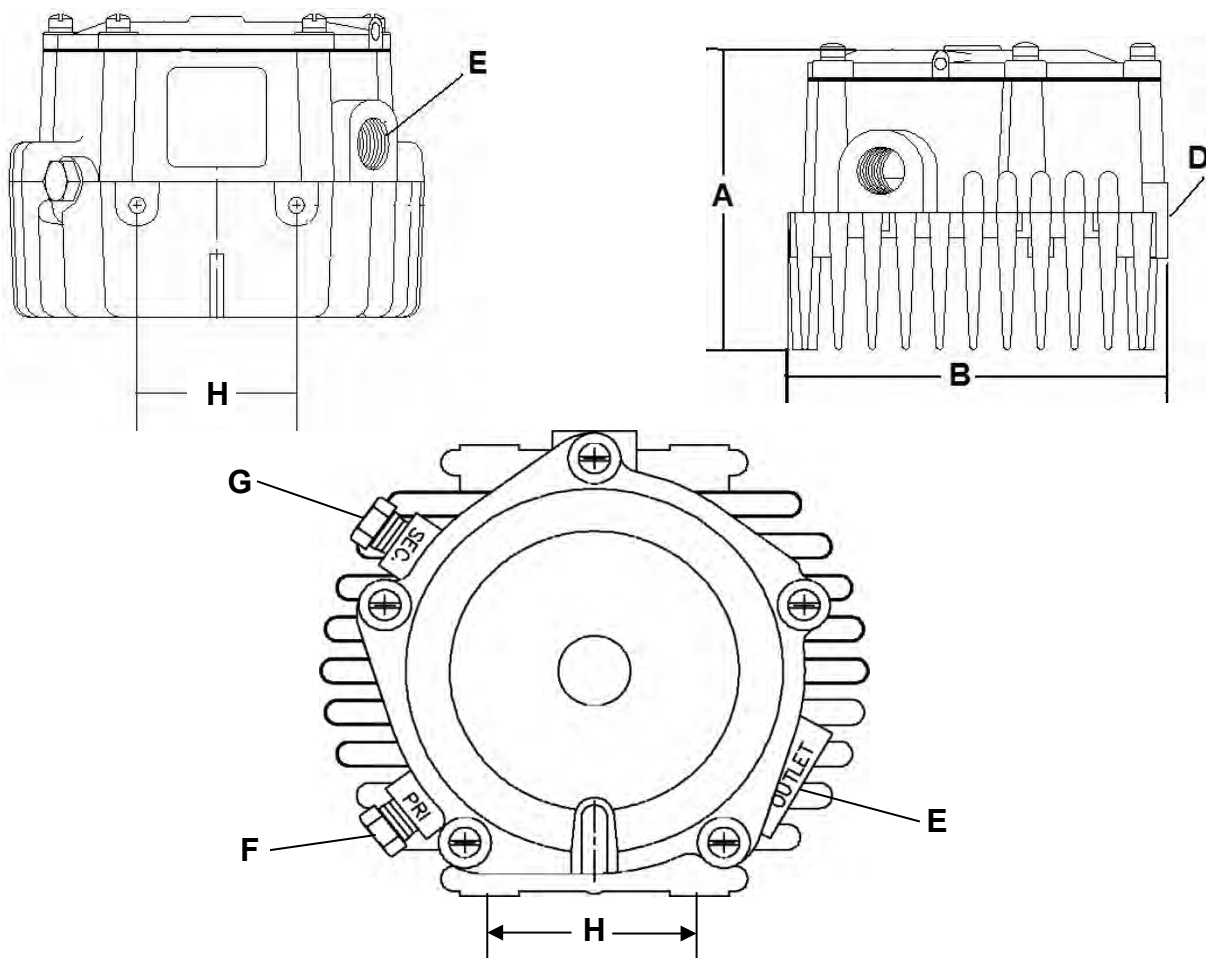
### DESCRIPTION

The Model AHR-50D Vaporizer regulator is a two-stage ambient air heated regulator that does not require a direct engine fluid heating source such as engine coolant to perform the vaporization process. The regulator can be used with liquid or vapor withdrawal systems and is ideal for both portable and mobile small engine applications, especially air cooled engines. The AHR-50D is compatible with IMPCO fuel mixers and venturi adapters.

### SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor
Inlet Pressure	
Maximum.....	312 psi (21.5 Bar)
Minimum .....	30 psi (207 kPa)
Outlet Pressure .....	-0.5" w.c. (-0.13 kPa.)
HP/kW Rating .....	21 hp (15.6 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Air heated
Mounting Position .....	Vertical recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 or HD-10 specified LPG fuel.
Diaphragm Material .....	Fluorosilicone
Application .....	Mobile and industrial
Certification .....	UL (AU1502), Inquire for specific ECE approval

## DIMENSIONS



A	B	C	D	E	F	G	H	I
OVERALL HEIGHT	OVERALL WIDTH	OVERALL DEPTH	FUEL INLET	FUEL OUTLET	PRIMARY TEST PORT	SECONDARY TEST PORT	MTG HOLE SIZE & CENTER TO CENTER	WEIGHT
95.2 mm (3.75")	116.5 mm (4.59")	N/A	1/4" NPT	3/8" NPT	1/8" NPT	1/8" NPT	1/4"- 20 2.0" (50.8 mm)	28.3 OZ (.80 kg)

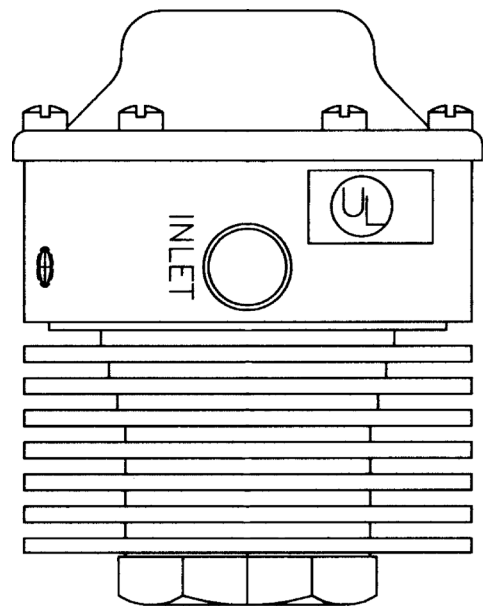
## REPAIR KIT

PART #	DESCRIPTION
RK-AHR50	Kit Repair Model AHR50

## OPTIONAL HIGH FLOW SPRINGS

PART #	DESCRIPTION
S2-30767	Spring, Sec AH50
S2-30768	Spring, Pri AH50

11A17-001



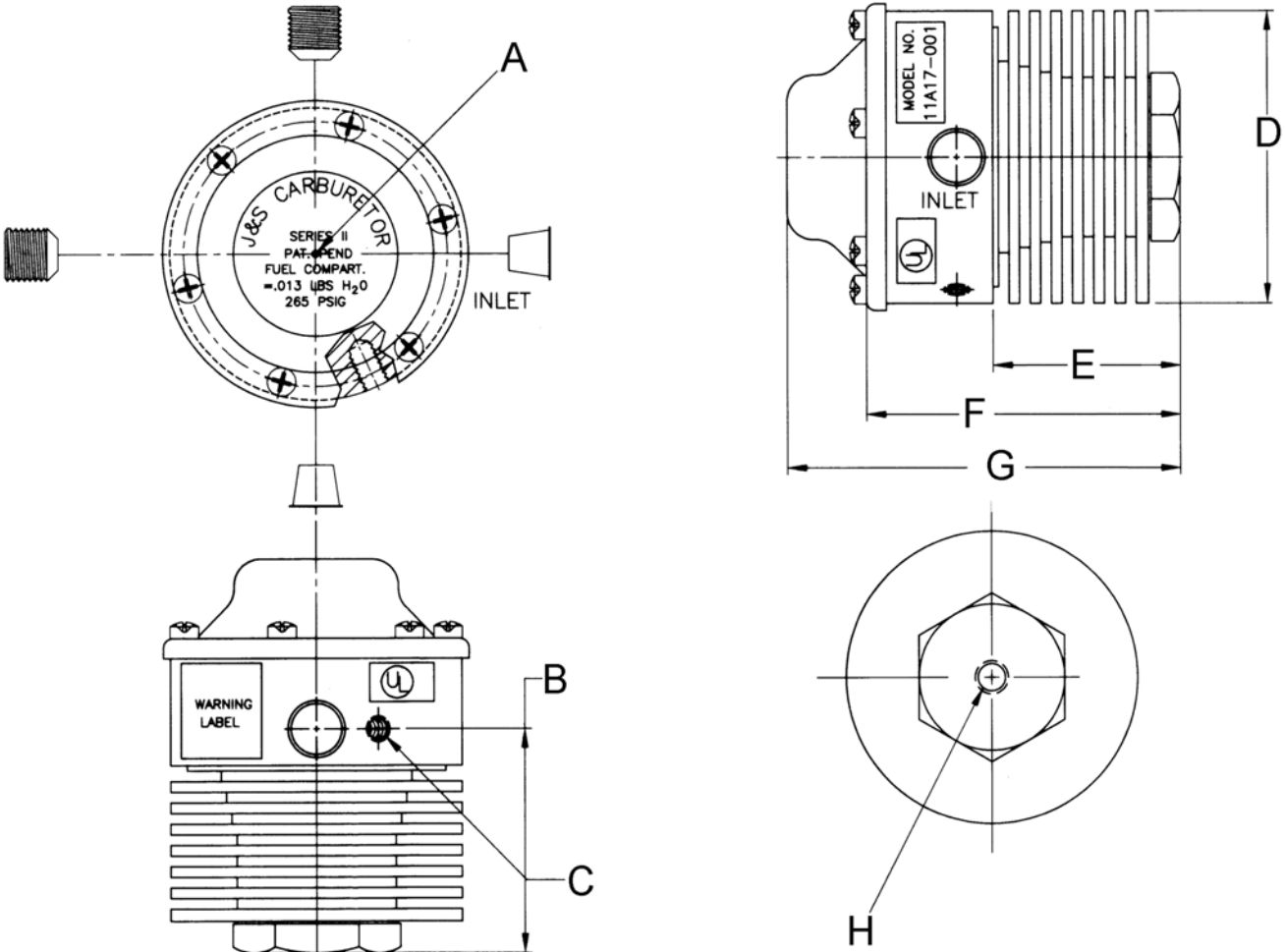
DESCRIPTION

The 11A17 vaporizer regulator (direct replacement for the Kohler 48 465 01) is a single stage regulator. It is an ambient air heated unit that does not require a direct engine fluid heating source such as engine coolant to perform the vaporization process. The unit can be used with liquid or vapor withdrawal systems.

SPECIFICATIONS

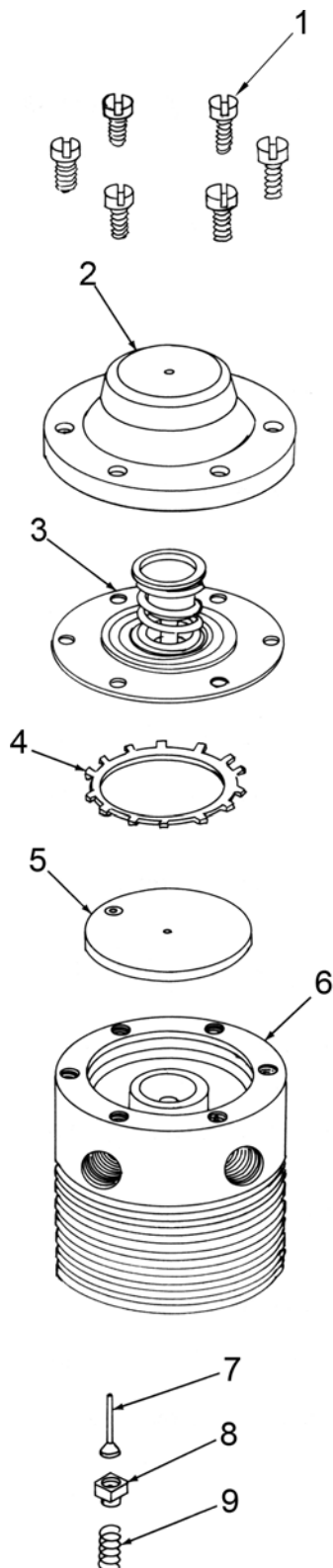
Fuel Type .....	LPG Liquid/Vapor
Inlet Pressure	
Maximum .....	265 psi (18.3 Bar)
Minimum .....	30 psi (207 kPa)
Outlet Pressure .....	9 -12 psi (62.0 - 82.7 kPa)
HP/kW Rating .....	25 hp (18.6 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Air
Mounting Position .....	Vertical, Horizontal
Diaphragm Material .....	NBR (Nitrile Butadiene Rubber)
Applications .....	Mobile, industrial, and automotive
Certification .....	UL (AU1502), Inquire for specific ECE approval

DIMENSIONS



	A	B	C	D	E	F	G	H
	VENT HOLE	HEIGHT MTG HOLE	DIA. MTG HOLE	DIAMETER	LENGTH OF FINS	LENGTH BODY	OVERALL HEIGHT	BOTTOM MTG HOLE
11A17-001	.06" (1.5mm)	2.20" (55.9mm)	1/4" 20 UNC X .38"	2.75" (69.9mm)	1.80" (45.7mm)	2.97" (75.4mm)	3.80" (96.52mm)	3/8" 16 UNC X .50"

## COMPONENTS



### VAPORIZER, P/N 11A17-001

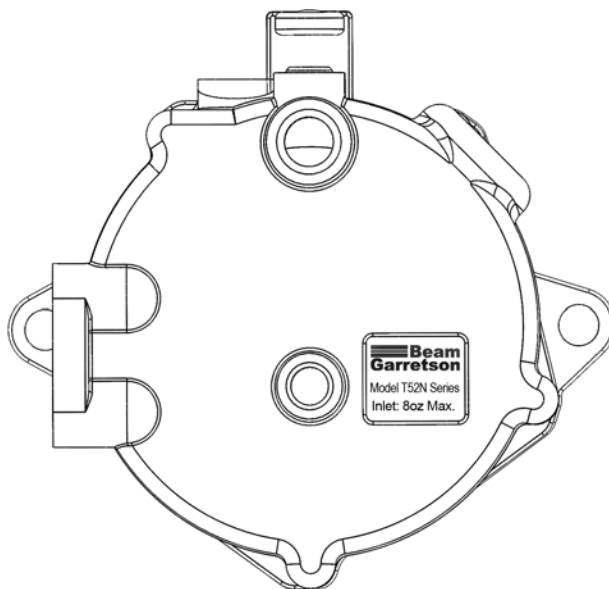
ITEM #	PART#	DESCRIPTION	QTY
1*	NSS	Screw, Cover	6
2	NSS	Cover	1
3*	NSS	Diaphragm Assy	1
4*	NSS	Retainer	1
5	NSS	Film Plate	1
6	NSS	Body	1
7*	NSS	Valve & Stem	1
8*	NSS	Valve Guides	1
9*	NSS	Spring	1

\*Included in Repair Kit P/N R11-27

### REPAIR KIT

PART #	DESCRIPTION
R11-27	Kit, Repair Major

## Model T52



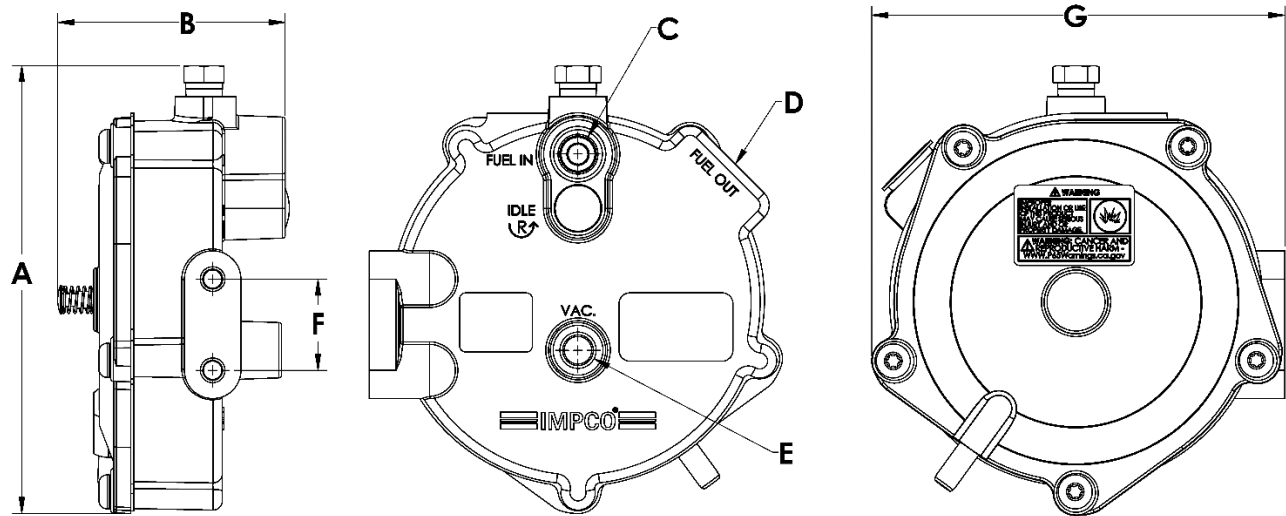
### DESCRIPTION

The Model T52 is a single stage secondary regulator suitable for LPG Vapor or Natural Gas. Variations of the regulator include a vacuum lockoff, mechanical primer and new mounting tabs. The T52 regulator is completely rebuildable using an IMPCO repair kit.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure (Maximum)	
T52B .....	5.0 psi (34.5 kPa)
T52N .....	14.0" w.c. (3.45 kPa)
Outlet Pressure (Nominal) .....	-0.5" w.c. (-0.12 kPa)
HP/kW Rating	
T52B .....	40 hp (29.8 kW) LPG Vapor
T52B .....	25 hp (18.6 kW) Natural Gas
T52N .....	15 hp (11.2 kW) LPG Vapor
T52N .....	12 hp (8.9 kW) Natural Gas
Operating Temperature Range .....	-40° F to +250° F (-40° C to +121° C)
Heating Chamber Source .....	None Required
Mounting Position .....	Vertical (outlet down) recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 or HD-10 specified LPG fuel.
Diaphragm Material .....	Hydrin
Application .....	Mobile, stationary, and industrial
Certification .....	UL (AU2317 & AU1502), Inquire for specific ECE approval

DIMENSIONS

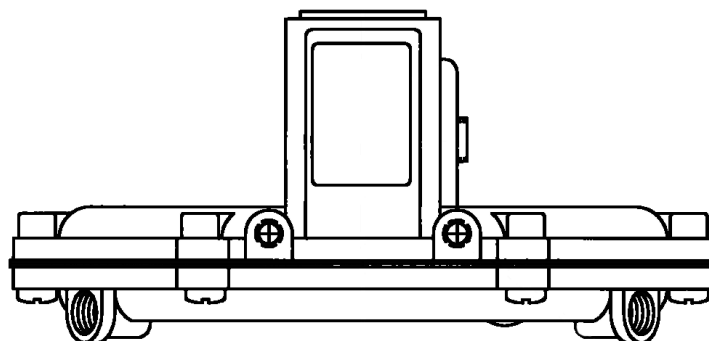
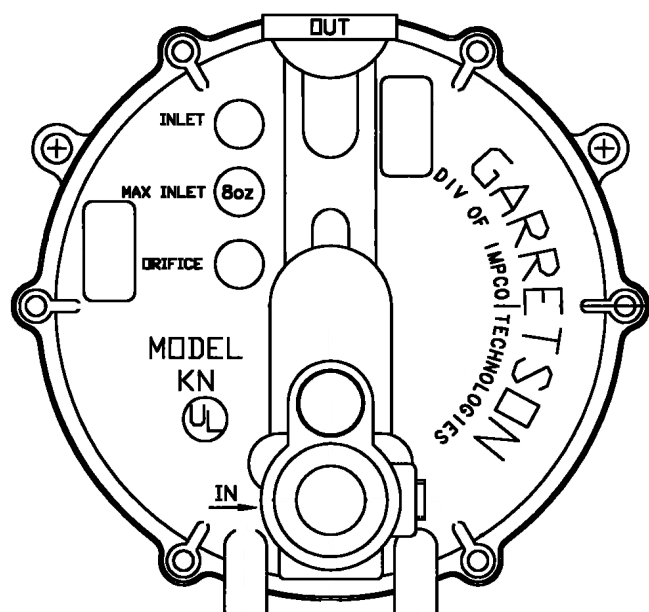


			A	B	C	D	E	F	G
PART #	JET SIZE	PRIMER	OVERALL HEIGHT	OVERALL DEPTH	FUEL INLET NPT	FUEL OUTLET NPT	VACUUM PORT NPT	MOUNTING HOLE SIZE/ CENTER TO CENTER	OVERALL WIDTH
T52N-58791-001	.218"	N	125mm (4.91")	53.3mm/ (2.10")	1/4"	3/8"	1/8"	1/4-20 / 25.4mm (1.0")	115.1mm (4.53")
<u>T52N-58791-002*</u>	.218"	Y	125mm (4.91")	63.4mm/ (2.50")	1/4"	3/8"	1/8"	1/4-20 / 25.4mm (1.0")	115.1mm (4.53")
<u>T52N-58791-003*</u>	.154"	N	125mm (4.91")	53.3mm/ (2.10")	1/4"	3/8"	1/8"	1/4-20 / 25.4mm (1.0")	115.1mm (4.53")

REPAIR KIT

PART #	DESCRIPTION
<u>T52-RBK*</u>	Repair Kit, 52

## Model KN



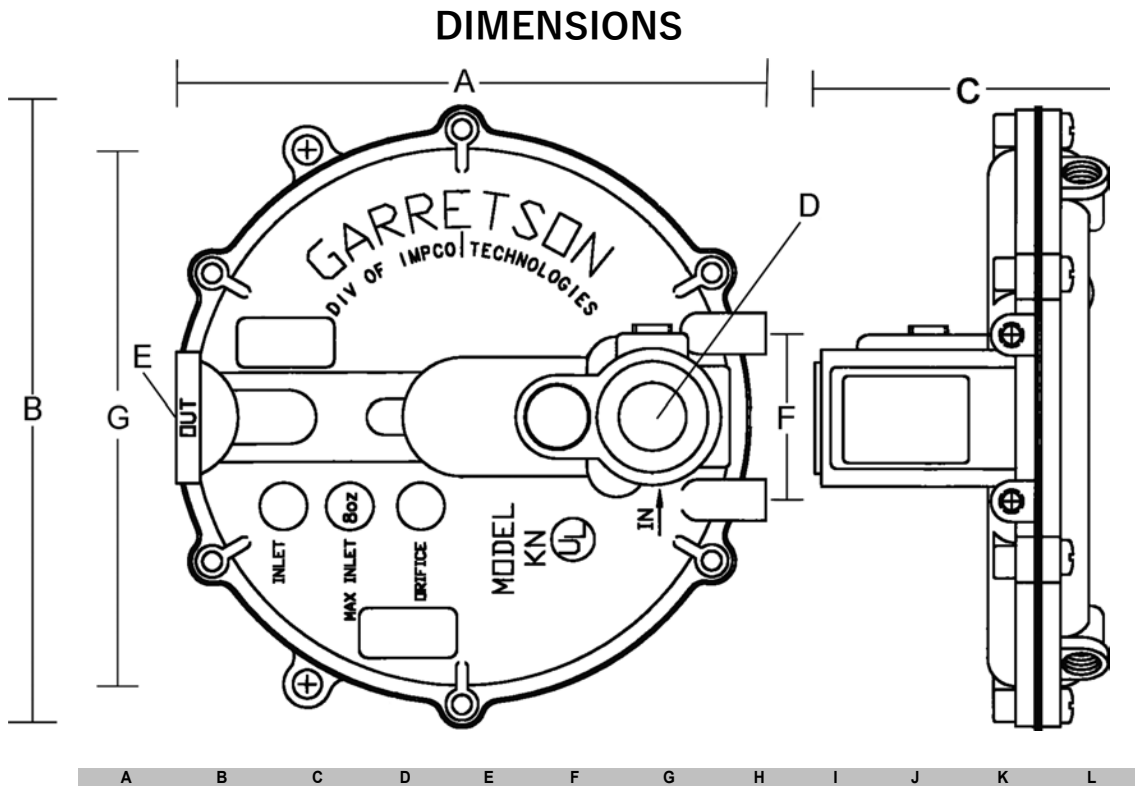
## DESCRIPTION

The Model KN is a secondary regulator designed for maximum sensitivity and simple, trouble-free operation. It is suitable for use with low pressure, Natural Gas and LPG Vapor fuels. This regulator is typically used in service applications up to 30 kW (40 hp). A new high flow capacity unit is also available with a ½" orifice, suited for service applications up to 37 kW (50hp). The KN regulator is completely rebuildable using an IMPCO repair kit.

## SPECIFICATIONS

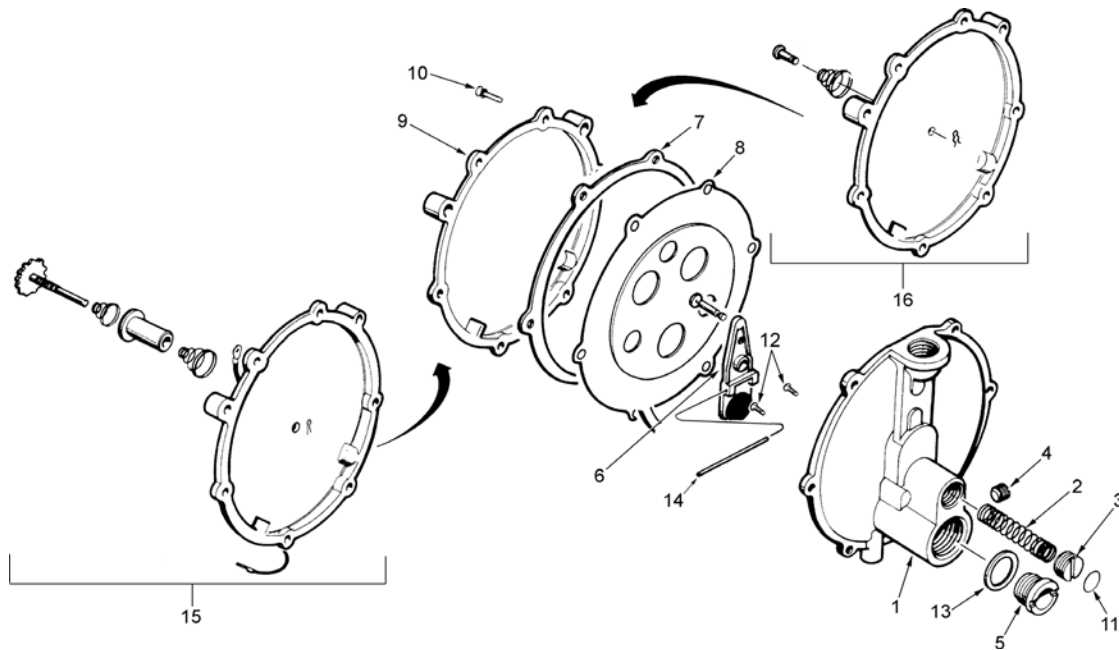
Fuel Type .....	LPG Vapor or Natural Gas Vapor
Inlet Pressure (Maximum) .....	13.84" w.c. (3.44 kPa)
Outlet Pressure (Nominal) .....	-0.5" w.c. (-0.12 kPa)
Initial Flow Pressure .....	-0.05 to -0.35 w.c.
HP/kW Rating	
LPG (Standard) .....	40 hp (29.8 kW)
LPG (High Flow) .....	50 hp (37.3 kW)
Natural Gas (Standard) .....	25 hp (18.6 kW)
Natural Gas (High Flow) .....	30 hp (22.4 kW)
Operating Temperature Range .....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical and as close to the carburetor as possible.
Diaphragm Material .....	Silicone
Applications .....	Stationary
Certification .....	UL (AU1502), Inquire for specific ECE approval





PART#	OVERALL HEIGHT	OVERALL WIDTH	OVERALL DEPTH	INLET NPT	OUTLET NPT	MOUNT HOLES SIZE	MOUNT HOLES SIZE SPACING	MAX INLET PRESS.	Spring	PRIMER	TAMPER RESIST	ORIFICE
039-0002	156mm (6.125")	165mm (6.50")	76.2mm (3.00")	3/4"	3/8"	1/4" 20 UNC 44.5mm (1.75")	1/4" (6.35mm) 5.75" (146.0mm)	8 oz	4 oz (Red)	NO	YES	7/16" (11.1mm)
039-0004	156mm (6.125")	165mm (6.50")	76.2mm (3.00")	3/4"	3/8"	1/4" 20 UNC 44.5mm (1.75")	1/4" (6.35mm) 5.75" (146.0mm)	8 oz	6 oz (Green)	NO	YES	7/16" (11.1mm)
039-0005	156mm (6.125")	165mm (6.50")	76.2mm (3.00")	3/4"	3/8"	1/4" 20 UNC 44.5mm (1.75")	1/4" (6.35mm) 5.75" (146.0mm)	8 oz	4 oz (Red)	NO	YES	7/16" (11.1mm)
039-12	156mm (6.125")	165mm (6.50")	76.2mm (3.00")	3/4"	3/8"	1/4" 20 UNC 44.5mm (1.75")	1/4" (6.35mm) 5.75" (146.0mm)	8 oz	6 oz (Green)	NO	NO	7/16" (11.1mm)
<u>039-121*</u>	156mm (6.125")	165mm (6.50")	76.2mm (3.00")	3/4"	3/8"	1/4" 20 UNC 44.5mm (1.75")	1/4" (6.35mm) 5.75" (146.0mm)	8 oz	6 oz (Green)	AUTO	NO	7/16" (11.1mm)
039-122	156mm (6.125")	165mm (6.0")	76.2mm (3.00")	3/4"	3/8"	1/4" 20 UNC 44.5mm (1.75")	1/4" (6.35mm) 5.75" (146.0mm)	8 oz	6 oz (Green)	MANUAL	NO	7/16" (11.1mm)
039-31173	156mm (6.125")	165mm (6.50")	76.2mm (3.00")	3/4"	3/8"	1/4" 20 UNC 44.5mm (1.75")	1/4" (6.35mm) 5.75" (146.0mm)	8 oz	4 oz (Red)	NO	YES	1/2" (12.7mm)
039-31173-1	156mm (6.125")	165mm (6.50")	76.2mm (3.00")	3/4"	3/8"	1/4" 20 UNC 44.5mm (1.75")	1/4" (6.35mm) 5.75" (146.0mm)	8 oz	4 oz (Red)	MANUAL	YES	1/2" (12.7mm)

## ACCESSORIES & COMPONENTS



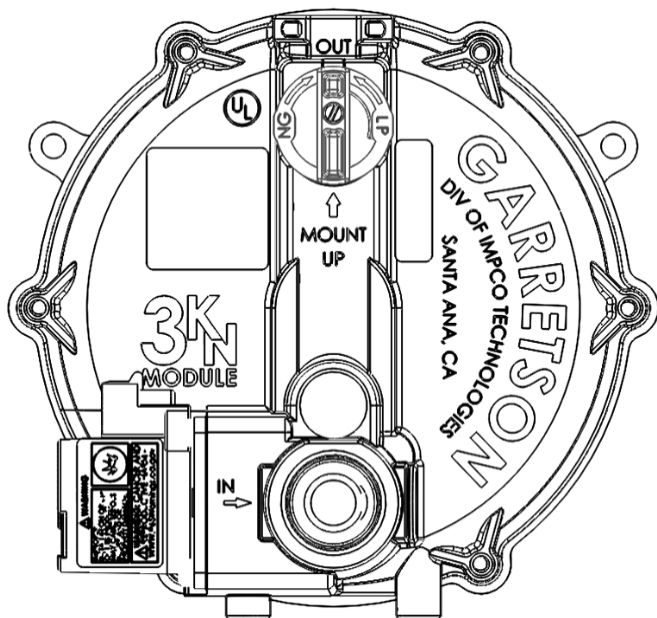
### COMPONENTS

ITEM#	PART#	DESCRIPTION	QTY
1	NSS	Body, Regulator Model KN	1
2	NSS	Spring, 4 Oz. Model Kn (Red)	1
3	NSS	Spring, 6 Oz. Model Kn (Green)	1
4	NSS	Screw, Adjusting	1
5	NSS	Fitting, 1/8Npt Hex Sch Plug	1
6	NSS	Orifice, 1/2" Id, KN Regulator	1
7	NSS	Lever & Seat Assembly	1
8	NSS	Gasket, Secondary Diaphragm	1
9	NSS	Diaphragm, Assy Reg Vmq Mod Kn	1
10	NSS	Cover, Regulator Diaph Mod Kn	1
11	NSS	Screw 10-32X5/8 Torx Pan Stlzn	6
12	NSS	Plug, Expansion	1
13	NSS	Screw 4-40X1/4 Torxph Tt Stlzn	2
14	NSS	Gasket, Orifice	1
15	NSS	Pivot Pin	1
16	NSS	Clip, Primer Pin	1

### OPTIONS/ACCESSORIES

PART#	DESCRIPTION	QTY
NSS	Spring, 4 Oz. Model Kn (Red)	1
NSS	Spring, 6 Oz. Model Kn (Green)	1
NSS	Pin, Primer Mod KN	1
NSS	Spring, primer .38" O.D. .19" I.D. .02"	1
NSS	Repair Kit, KN	1
NSS	Clip, Primer Pin	1

## 2KN / 3KN Module



### DESCRIPTION

The 2KN and 3KN modules are similar to the KN regulator, but offer a built in lock-off (2KN / 3KN) and a fuel selection valve (3KN), allowing for easy switching between LPG vapor and Natural Gas on dual fuel applications. The module can be used in both non-certified systems and certified emissions systems (including tamper resistant features). The 2KN and 3KN can be serviced using the standard KN IMPCO repair kit.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor (3KN Only) or Natural Gas	
Inlet Pressure		
Maximum.....	14.0" w.c. (3.49 kPa)	
Minimum .....	3.0" w.c. (0.87 kPa)	
Outlet Pressure (Nominal).....	-0.5" w.c. (-0.12 kPa)	
Initial Flow Pressure .....	-0.12 w.c. (-0.03 kPa)	
HP/kW Rating		
LPG .....	47 hp (35.0 kW)	
Natural Gas.....	35 hp (26.1 kW)	
Filtration.....	Integrated 500 micron SS mesh	
Fuel Lock-off.....	12 VDC (12 W)	24 VDC (16 W)
Ambient Temperature .....	-40° F (40° C) to +194° F (90° C) -40° F (-40° C) to 131° F (55° C)	
Fluid Temperature .....	-40° F (40° C) to 131° F (55° C) -40° F (40° C) to 131° F (55° C)	
Minimum Opening Voltage .....	8 VDC @ 14.0" w.c. @ -40° C	
Mounting Position .....	Vertical and as close to the carburetor as possible to minimize line loss	
Mounting.....	2x M6 threaded bottom mounting or 2x M6 clearance side mounting points	
Diaphragm Material .....	Silicone	
Applications.....	Stationary, portable	
Mass .....	2.07 pounds (937 grams)	
Tamper Resistance .....	Configurable to meet CARB and EPA requirements.	

Note: Where applicable, any product underlined and in **red text** is obsolete. Visit page 6 for support.

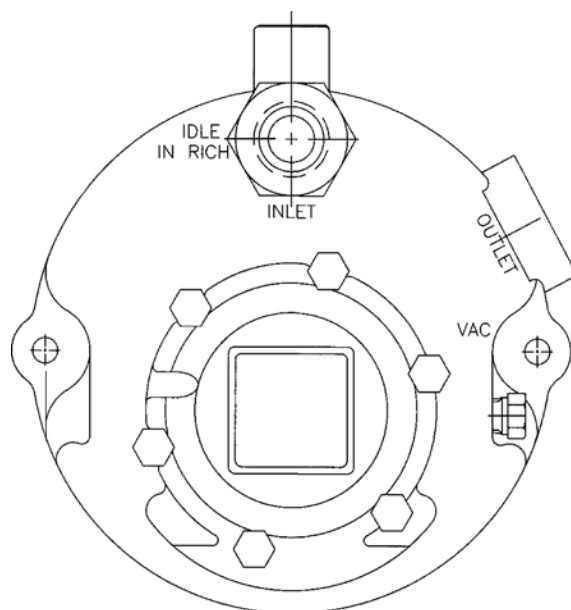


Certification.....UL (AU1502), Inquire for specific CSA approval

## Regulators



## Model 202A (obsolete)



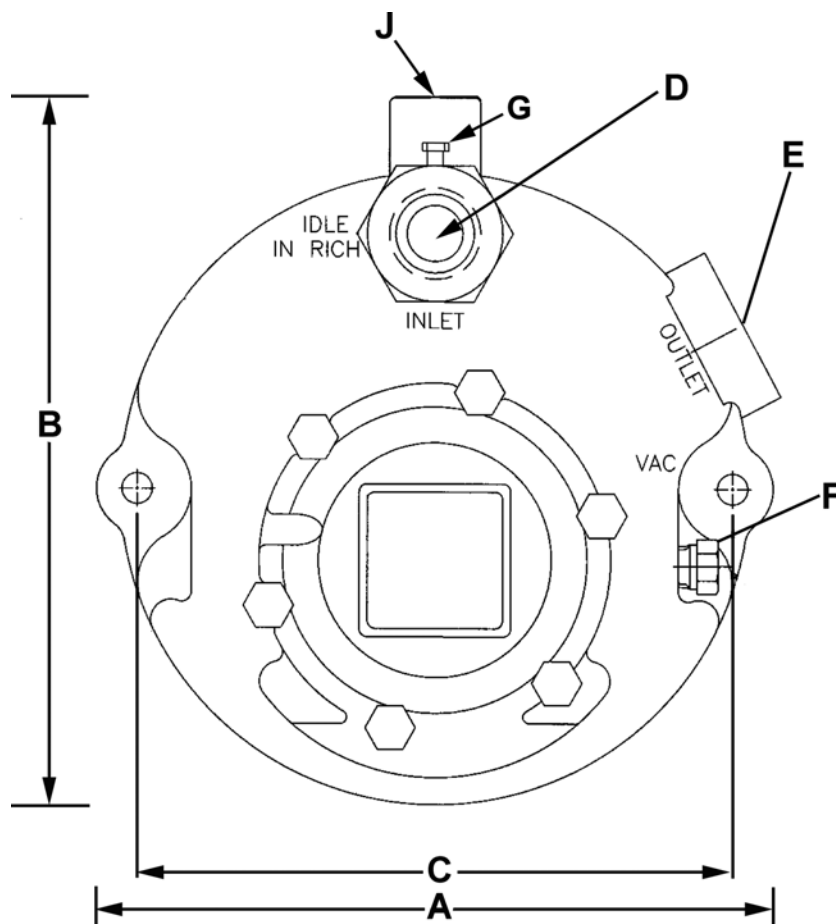
### DESCRIPTION

The Model 202A is a high capacity, secondary, dry gas pressure regulator designed for use with LPG Vapor or Natural Gas. The Model 202A is a secondary regulator and requires a primary regulator to reduce pressure to the fuel inlet. It is available in several variations, some of which include an internal lockoff which shuts off fuel supply outlet when the engine stops. It is also available with idle screw and optional manual primer. The Model 202A regulator is completely rebuildable using an IMPCO repair kit.

### SPECIFICATIONS

Fuel Type.....	LPG Vapor or Natural Gas
Inlet Pressure (Maximum).....	13.84" w.c. (3.44 kPa)
Outlet Pressure (Nominal) .....	-0.5" w.c. (-0.12 kPa)
HP/kW Rating (202AN).....	45 hp (33 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Heating Chamber Source .....	None
Mounting Position.....	Vertical recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 or HD-10 specified LPG fuel.
Diaphragm Material.....	NBR
Applications .....	Stationary, mobile, industrial, and automotive
Certification .....	UL (AU2317 & AU1502), Inquire for specific ECE approval

## DIMENSIONS



A		B	C		D	E	F	G	H	J	K	L	M
				MOUNTING		FUEL	FUEL	VACUUM	INLET PRESS TEST				
MODEL	OVERALL WIDTH	OVERALL HEIGHT	OVERALL DEPTH	HOLES CTR. TO CTR.	INLET (NPT)	OUTLET (NPT)	PORTS (NPT)	PORT (NPT)	PRIMARY ORIFICE	IDLE SCREW	INTERGRAL LOCKOFF	PRIMER	WEIGHT
202ANL-C	158.7 mm (6.25")	191 mm (7.5")	153.1 mm (6.027")	141 mm (5.500")	1/2"	3/4"	1/8"	1/8"	9.5 mm (0.38")	NO	NO	YES	791 g (28 oz)
T202ANL-E-1	158.7 mm (6.25")	191 mm (7.5")	153.1 mm (6.027")	140 mm (5.500")	1/2"	3/4"	1/8"	1/8"	9.5 mm (0.38")	YES	NO	NO	793 g (28 oz)

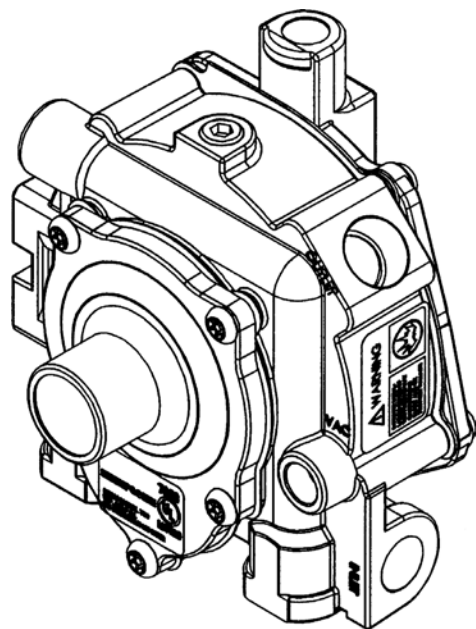
## REPAIR KIT

PART #	DESCRIPTION
T202-RBK	Rebuild Kit, 202
T202-RK	Repair Kit, 202

## ACCESSORIES

PART #	DESCRIPTION
PS-25	Screw, Idle Adj w/Primer

Model T60



DESCRIPTION

The T60 is a two-stage regulator/vaporizer for LPG applications up to 60 hp (44.7 kW). Various models feature built-in vacuum lock, idle adjustment, primers, various heating methods, and several mounting options. Newer models (post 2010 production) include an improved primary and secondary lever and seat design, and a standard freeze plug and idle screw. The idle screw has improved sensitivity and stability and is relocated to the cover. An idle screw cap and tamper resistant screws satisfy regulatory tamper resistance requirements. Optional dual mounting tabs are available and all mounting features and ports will remain the same.

SPECIFICATIONS

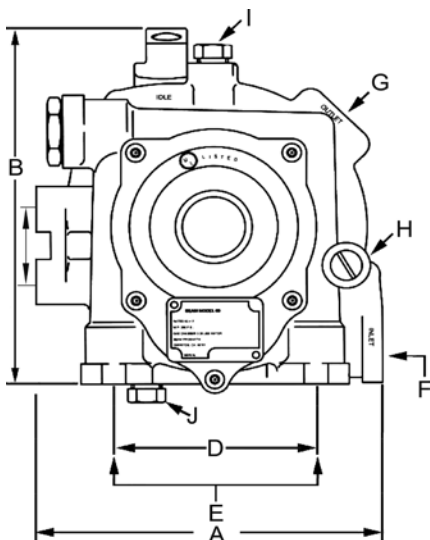
Fuel Type .....	LPG Liquid/Vapor or Natural Gas
Inlet Pressure	
Maximum.....	250 psi (17.23 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure (Nominal) .....	-0.5" w.c. (-0.13 kPa)
HP/kW Rating .....	60 hp (44.7 kW) LPG Liquid
	40 hp (29.8 kW) LPG Vapor
	30 hp (22.4 kW) Natural Gas
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Required for LPG Liquid
Mounting Position .....	Vertical (outlet down) recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 or HD-10 specified LPG fuel.
Diaphragm .....	Hydrin
Applications.....	Stationary, mobile, industrial and automotive



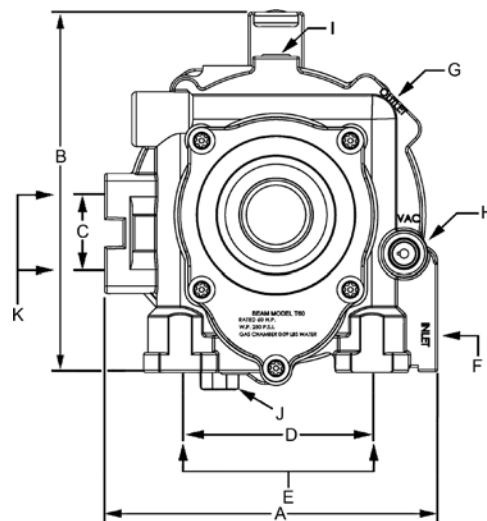


Certification .....UL (AU1502), Inquire for specific ECE approval

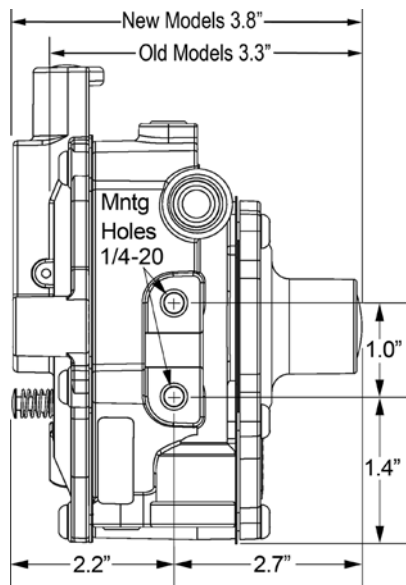
## DIMENSIONS



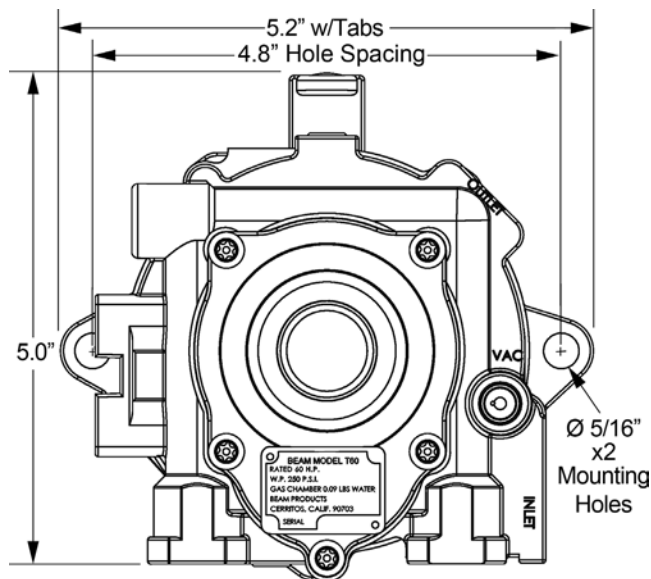
Early Model



New Model (without tabs)



Profile (New Model Shown)



Front View (New Model with tabs shown)

	A	B	C	D	E	F	G	H	I	J	K	N
	OVERALL WIDTH	OVERALL HEIGHT	OVERALL DEPTH	MOUNTING HOSE CTR. TO CTR.	COOLANT IN/OUT CTR. TO CTR.	COOLANT INLET & OUTLET (NPT)	FUEL INLET (NPT)	FUEL OUTLET (NPT)	VACCUM PORTS (NPT)	PRIMARY TEST PORTS	SECONDARY PRESS. & OIL DRAIN	APPROX WEIGHT
<b>Early Model</b>	110 mm (4.350")	124 mm (4.875")	82.6 mm (3.250")	25.4 mm (1.000")	66.7 mm (2.625")	1/4"	1/4"	3/8"	1/8"	1/8"	1/8"	680g (24oz.)
<b>New Model (w/Out Tabs)</b>	110 mm (4.350")	127 mm (5.0")	96.5 mm (3.8")	25.4 mm (1.000")	66.7 mm (2.625")	1/4"	1/4"	3/8"	1/8"	1/8"	1/8"	740g (26oz.)
<b>New Model (w/Tabs)</b>	132.8 mm (5.2")	127 mm (5.0")	82.6 mm (3.250")	25.4 mm (1.000")	66.7 mm (2.625")	1/4"	1/4"	3/8"	1/8"	1/8"	1/8"	822g (29oz.)

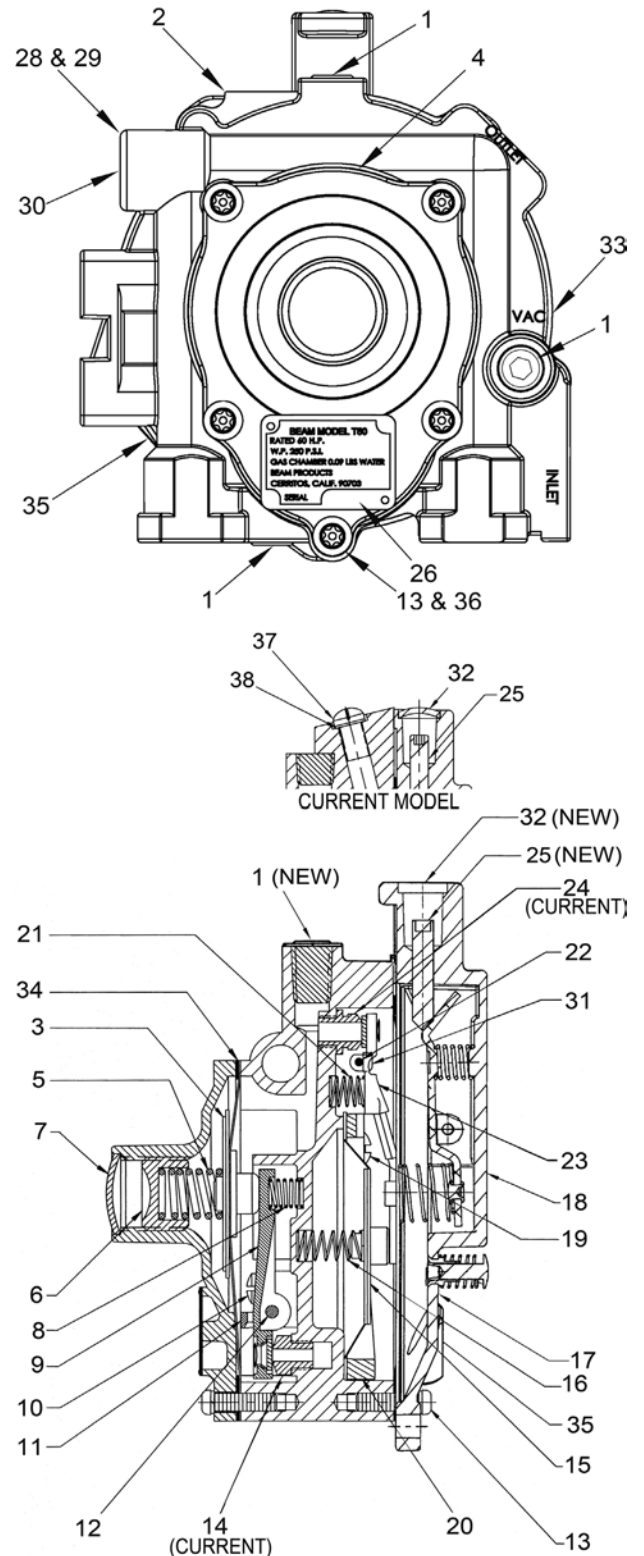
Note: Where applicable, any product underlined and in **red text** is obsolete. Visit page 6 for support.

## COMPONENTS

Item #	P/N	DESCRIPTION
1	NSS	PLUG, 1/8 Socket Head Steel (NEW)
	P3-13	PLUG, 1/8-27 NPT* (1) (EARLY)
2	NSS	CASTING, REGULATOR BODY
3	NSS	DIAPHRAGM ASSEMBLY* (1), (2)
4	NSS	COVER, PRIMARY REGULATOR
5	NSS	SPRING, PRIMARY* (1)
6	NSS	SCREW, RETAINER, ADJUSTABLE SPRING
7	NSS	PLUG, EXPANSION* (1), (2)
8	NSS	SPRING, PRIMARY LEVER* (1)
9	NSS	LEVER ASSY, PRIMARY* (1), (2)
10	NSS	SCREW, FIL HD, 10-32 UNF-2A x .31 L (EARLY)
		SCREW, M5 x 0.8 7.9 FIL HD, TORX (NEW)
11	NSS	BRIDGE, PRIMARY
12	NSS	PIN, PRIMARY PIVOT* (1)
13	NSS	SCREW, 10-32 x.62 TORX* (1)
		SCREW, TORX TAMP RES M5 X16MM (NEW)
14	NSS	ORIFICE, PRIMARY REGULATOR (EARLY)
15	NSS	DIAPHRAGM ASSEMBLY, VAC LOCK* (1), (2)
16	NSS	SPRING, VAC LOCK* (1)
17	NSS	DIAPHRAGM, SECONDARY* (1), (2)
18	NSS	COVER ASSY (NEW)
	NSS	COVER ASSY W/PRIMER (NEW)
19	NSS	SCREW, PAN HD 10-32 x .38* (1)
		SCREW, TORX TAMP RES M5 X16MM (NEW)
20	NSS	RING, VAC. LOCK
21	NSS	SPRING, SECONDARY LEVER* (1)
22	NSS	PIN, SECONDARY PIVOT* (1)
23	NSS	LEVER ASSY, SECONDARY* (1), (2) (NEW)
		LEVER ASSY, SECONDARY (EARLY)
24	NSS	ORIFICE, SECONDARY REGULATOR (EARLY)
25	NSS	SCREW, ADJUSTMENT* (I)
	NSS	SCREW, ADJUSTMENT (NEW)
26	NSS	LABEL
27	NSS	DELETED
28	NSS	PLUG, RELIEF* (1), (2) (EARLY)
	NSS	PLUG, FREEZE .50 DIS. X .38 (NEW)
29	NSS	GASKET, PLUG* (1), (2) (EARLY)
30	NSS	PLUG, WATER CORE (EARLY)
31	NSS	SCREW, PAN HD, 10-32 UNF-2A X .25 L* (1)
		SCREW, TORX TAMP RES M5 X16MM (NEW)
32	P3-17956-1	PLUG, EXPANSION* (1), (2)
33	NSS	LABEL, WARNING* (1), (2)
34	NSS	GASKET, DIAPHRAGM* (1), (2)
35	NSS	LABEL, IDENT-SILVER
36	NSS	WASHER, SPLIT LOCK* (1) (EARLY)
37	NSS	SCREW, FIL HD 1/4-28 UNF-2A* (1) (EARLY)
38	NSS	WASHER, COPPER-SPECIAL

NSS=Not Sold/Service Separately

\*Repair Kit. (1)=T60-RBK; (2)=T60-RK



## APPLICATION CHART

Early Part Number	Freeze Plug	Idle Screw	Additional 1/2" Depth (When Replaced by New Part Number)	New Part Number	Vacuum Lock	Primer	Mounting Tabs
T60-N-2		•		T60-A-NN-2			•
T60-S-2		•					
T60-E	•	•	•				
T60-F-N	•	•					
T60-S-N		•		T60-A-NN-N			
T60-N-N		•					
T60-D	•		•				
				T60-A-NP-		•	•
T60-G	•	•	•				
T60-C	•		•	T60-A-NP-N		•	
T60-P-N		•					
T60-VF-2	•	•		T60-A-VN-2	•		•
T60	•	•	•				
T60-H		•	•				
T60-VF-N	•	•		T60-A-VN-N	•		
T60-V-N		•					
				T60-A-VP-	•	•	•
T60-B	•	•	•				
T60-VP-N		•		T60-A-VP-N	•	•	

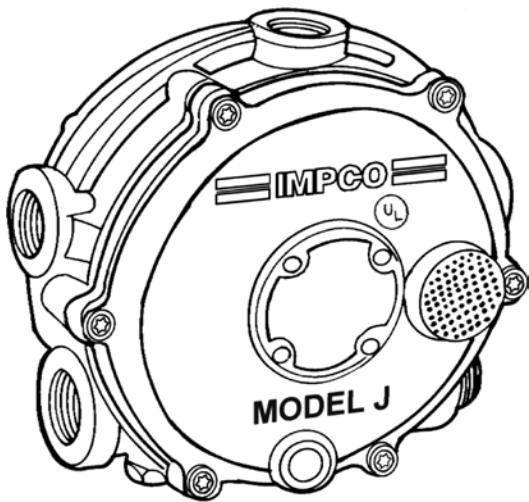
**Note:** All New T60 models have a freeze plug and an idle screw

N=None

V=Vacuum

2=Number of tabs

Model J



DESCRIPTION

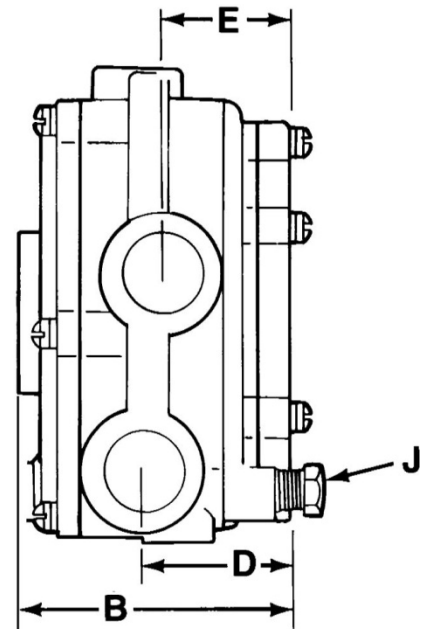
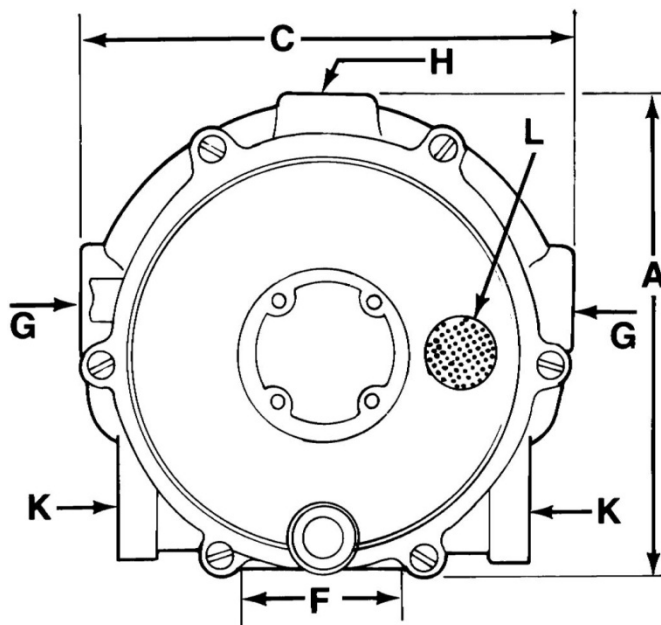
The Model J regulator/vaporizer delivers reliable performance and pressure output consistency. Its reliability, especially with questionable fuel quality, has made it an industry standard for many years.

Two vapor outlet pressures are available. The standard JB blue provides -1.5" w.c. (-0.37 kPa). The optional JO provides -0.5" w.c. (-0.12 kPa). The port size and mounting pad locations are identical to the Cobra regulator and include a primary pressure test port and "left" or "right" fuel outlets.

SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor
Inlet Pressure	
Maximum.....	312 psi (21.51 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure (Nominal)	
JB (blue spring) .....	-1.5" w.c. (-0.37 kPa)
JO (orange spring) .....	-0.5" w.c. (-0.12 kPa)
HP/kW Rating .....	100 hp (74.6 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Required for LPG Liquid
Mounting Position .....	Vertical recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 or HD-10 specified LPG fuel.
Applications .....	Mobile, stationary, industrial and automotive
Certification .....	UL (AU1502), Inquire for specific ECE approval

## DIMENSIONS



A	B	C	D	E	F	G	H	J	K	L
OVERALL HEIGHT	OVERALL DEPTH	OVERALL WIDTH	BACK OF CONVERTER TO CTR OF FUEL OUTLET	BACK OF CONVERTER TO CTR. OF WATER OUTLET	MOUNTING HOLES CTR. TO CTR.	COOLANT INLET AND OUTLET (NPT)	FUEL INLET (NPT)	PRIMARY TEST PORT (NPT)	FUEL OUTLET (NPT)	VENT BALANCE LINE CONNECTION (NPT)
108mm (4.25")	73.00mm (2.88")	118mm (4.63")	41.3mm (1.63")	34.9mm (1.38")	41.3mm (1.63")	3/8"	1/4"	1/8"	1/2"	1/8"

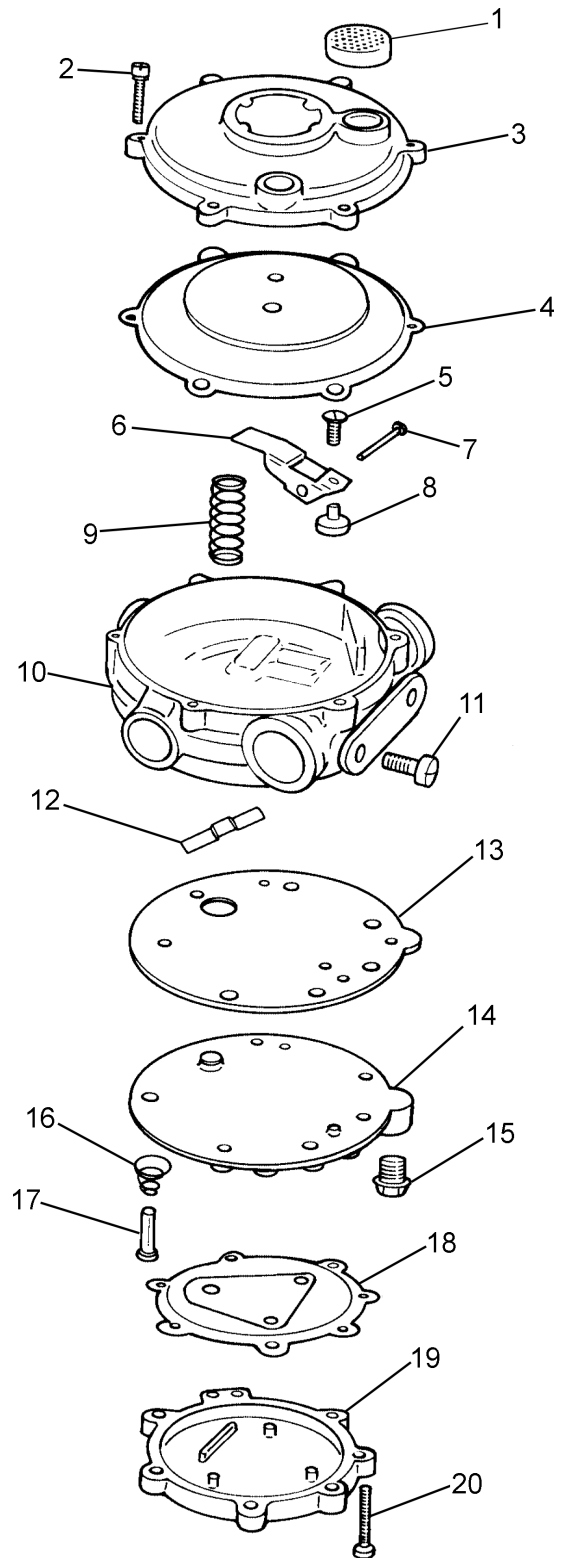
MODEL	SECONDARY DIAPHRAM	OUTLET PRESSURE	CHECK VALVE	NOTES
JB	AD1-26 (BLACK HYDRIN)	Neg. 0.37 kPa (Neg. 1.5" H2O)	NO	
JB-2	AD1-27 (SILICONE)	Neg. 0.37 kPa (Neg. 1.5" H2O)	NO	
JB-2ULC	AD1-27 (SILICONE)	Neg. 0.37 kPa (Neg. 1.5" H2O)	NO	CANADA
JB-C-725	AD1-26 (BLACK HYDRIN)	Neg. 0.37 kPa (Neg. 1.5" H2O)	AF4-14883	
<u>JB-L-377*</u>	AD1-26 (BLACK HYDRIN)	Neg. 0.37 kPa (Neg. 1.5" H2O)	NO	PLUG, L.H. CLARK
<u>JB-R*</u>	AD1-26 (BLACK HYDRIN)	Neg. 0.37 kPa (Neg. 1.5" H2O)	NO	
JO	AD1-26 (BLACK HYDRIN)	Neg. 0.12 kPa (Neg. 0.5" H2O)	NO	
JO-2	AD1-27 (SILICONE)	Neg. 0.12 kPa (Neg. 0.5" H2O)	NO	
JB-P	AD1-26 (BLACK HYDRIN)	Neg. 0.37 kPa (Neg. 1.5" H2O)	NO	WITH PRIMER PIN
JB-2-P	AD1-27 (SILICONE)	Neg. 0.37 kPa (Neg. 1.5" H2O)	NO	WITH PRIMER PIN

## COMPONENTS

ITEM #	PART #	DESCRIPTION
1	NSS	Screen, atmospheric vent
2	NSS	Screw, 8-32 x 7/8" Torx style (6)
3	NSS	Cover Assy Secondary
4	NSS*	Diaphragm ass'y, secondary, Hydrin (RK-J, RK-J-C & RK-JC-734)
	NSS*	Diaphragm Assy, Secondary, Silicone (RK-J-2)
	NSS*	Diaphragm Assy, Secondary, Silicone (RK-J-3)
5	NSS	Screw, 8-32 x 1/2" Torx style
6	NSS	Lever, Secondary
7	NSS	Pin, Secondary Fulcrum
8	NSS*	Seat, Secondary
9	NSS	Spring, blue secondary, Neg. 0.37 kPa (Neg. 1.5" H <sub>2</sub> O), standard
	NSS	Spring, orange, secondary, Neg. 0.12 kPa (Neg. 0.5" H <sub>2</sub> O), optional
10	NSS	Body Assy, w/jet
11	NSS	Plug, vapor outlet
12	NSS*	Seat, Primary Reg Mod J
13	NSS*	Gasket, body Plate Mod J
14	NSS	Plate, Converter Body for Mod J
15	P3-13	Plug, 1/8 NPT, hex head
16	NSS	Spring, Primary Reg Model J
17	NSS*	Primary valve pin
18	NSS*	Diaphragm Assy, Primary
19	NSS	Cover, Primary
20	NSS	Screw, 8-32 x 7/8" Slot style (7)

**NSS = Not Serviced Separately**

\* Included in repair kit



## STANDARD AND OPTIONAL EQUIPMENT

### PRIMER

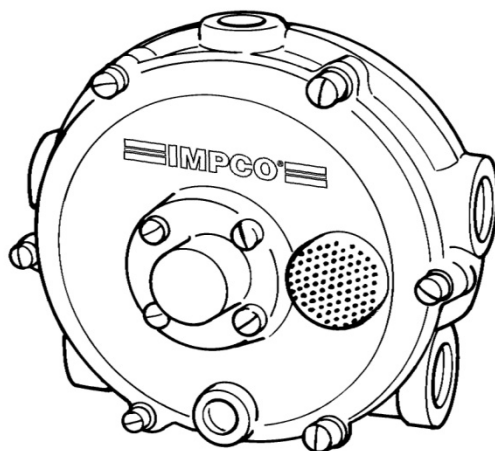
PART#	DESCRIPTION
<u>AB1-28*</u>	Mechanical Primer, Early Primer Models Only
SV	Start assist valve

### REPAIR KITS

PART#	DESCRIPTION
RK-J	Repair Kit Model J, Hydrin Diaphragm
RK-J-2	Repair Kit Model J, w/Silicone Diaphragm
<u>RK-J-200*</u>	Repair Kit Model J, for Towmotor
<u>RK-J-3*</u>	Repair Kit Model J w/Fluorosilicone Diaphragm
RK-J-632	Standard RK-J For Clark
<u>RK-J-71*</u>	Repair Kit Model J, for Toyota
RK-J-837	Repair Kit Model J, for Hyster
<u>RK-J-895*</u>	Repair Kit Model J, for Allis Chalmers
RK-J-C	Repair Kit For Mod J w/Check Valve (JB-C-725)
<u>RK-J-C-3*</u>	Repair Kit Model J w/Check Valve & Fluorosilicone Dia
<u>RK-JC-734*</u>	Repair Kit For JO-C/Clark w/Check Valve



## Model PJ (obsolete)



### DESCRIPTION

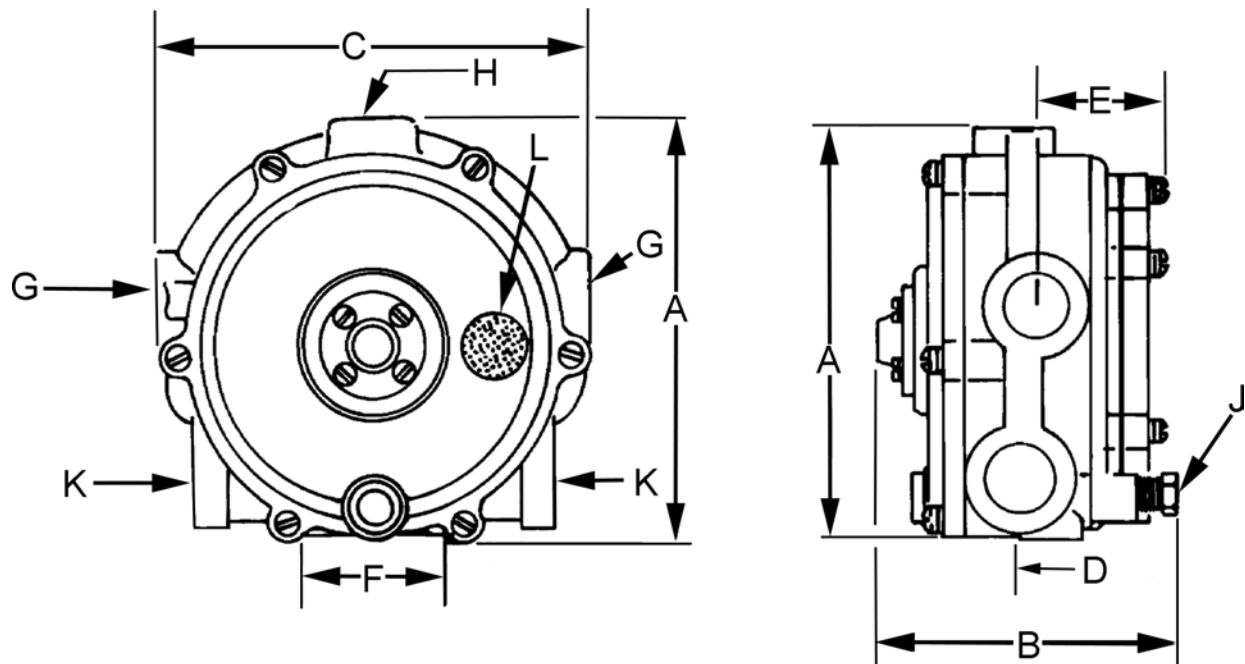
The Model PJ is a positive pressure, two stage regulator. It is designed for positive pressure Natural Gas fuel systems where liquid vaporization and engine coolant heating are not required, however, additional fuel temperature and mixture stability may be gained through the use of engine coolant.

This regulator is able to provide positive flow in applications up to 80 hp (59.7 kW). Fixed regulators can be converted in the field to adjustable with the AC1-74 kit. Fixed pressure regulators are preferred in applications that are not subject to fuel quality variations or to deter unauthorized tampering. There is a primary pressure test port and “left” or “right” fuel outlets.

### SPECIFICATIONS

Fuel Type .....	Natural Gas
Inlet Pressure	
Maximum.....	312 psi (21.51 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure (Nominal) .....	+5.0” w.c. (1.25 kPa)
HP/kW .....	80 hp (59.7 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Optional
Mounting Position .....	Vertical recommended
Applications .....	Mobile, industrial, and automotive
Certification .....	Inquire for specific ECE approval

## DIMENSIONS



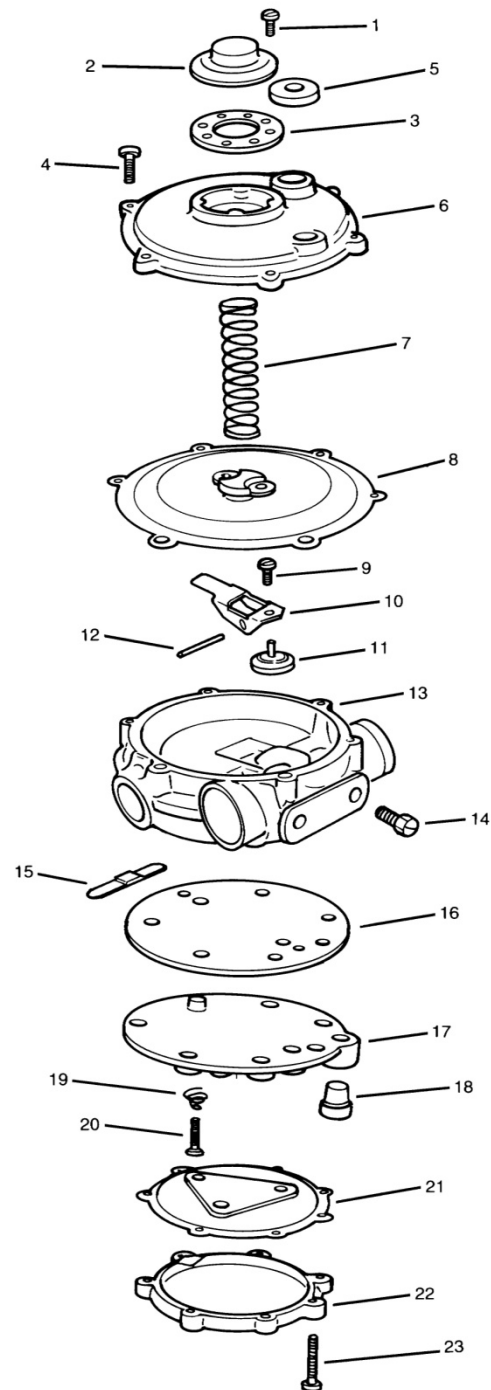
A	B	C	D	E	F	G	H	J	K	L
OVERALL HEIGHT	OVERALL DEPTH	OVERALL WIDTH	BACK OF CONVERTER TO CTR. OF FUEL OUTLET	BACK OF CONVERTER TO CTR. OF WATER OUTLET	MOUNTING HOLES CTR. TO CTR.	COOLANT INLET AND OUTLET (NPT)	FUEL INLET (NPT)	PRIMARY TEST PORT (NPT)	FUEL OUTLET (NPT)	VENT BALANCE LINE CONNECTION (NPT)
121mm (4.750")	73mm (2.875")	118mm (4.625")	76.2mm (3.00")	76.2mm (3.00")	1.625" (41.3mm)	3/8"	1/4"	1/8"	1/2"	1/8"

## COMPONENTS

ITEM #	PART #	DESCRIPTION
1	NSS *	Screw, 6-32 x 5/16" SEMS
2	H3-3	Housing, Spring
3	G1-84 *	Gasket, spring housing
4	NSS	Screw, 8-32 x 5/8" 265-003 (6)
5	NSS	Screen, atmospheric vent
6	NSS	Cover ass'y, Model PJ converter
7	NSS	Spring, secondary regulator
8	AD1-26-2 *	Diaphragm ass'y, secondary
9	NSS	Screw, 8-32 x 1/2"
10	AL1-37	Lever ass'y, secondary regulator
11	S4-27 *	Seat, low pressure Model J
12	P1-8	Pin, secondary fulcrum
13	NSS	Body ass'y
14	NSS	Screw, 1/4-20 x 5/8" SEMS (2)
15	NSS*	Seat, primary regulator
16	NSS	Gasket, body to plate
17	NSS	Plate, converter body cover
18	NSS	Plug, 1/8 NPT, hex head
19	NSS	Spring, primary regulator
20	NSS	Pin, primary valve
21	NSS	Diaphragm ass'y, primary
22	NSS	Cover, primary regulator
23	NSS	Screw, 8-32 x 1" (7)

**NSS = Not Serviced Separately**

\* Included in repair kit



## STANDARD AND OPTIONAL EQUIPMENT

### STANDARD CONVERTERS

MODEL	SECONDARY DIAPHRAGM	OUTLET PRESSURE	EC1 OUTLET PRESSURE	MANUAL PRIMER	CHECK VALVE
PJ	Black Hydrin	1.12 kPa (4.5" H <sub>2</sub> O)	N/A	N/A	N/A

### FUEL CONTROL VALVES

PART #	DESCRIPTION
SV	Electric solenoid starting valve
VPV	Vacuum power valve

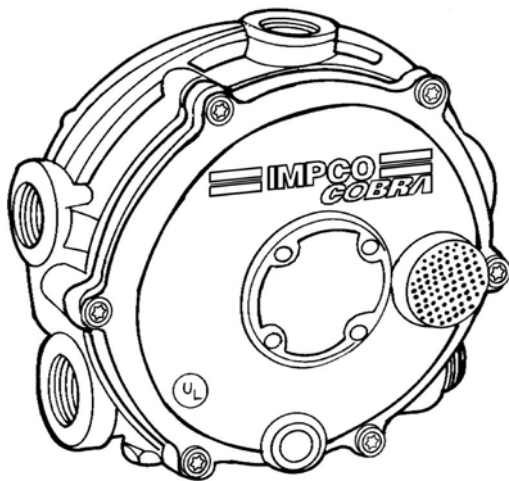
### GAUGE

PART #	DESCRIPTION
RK-J	Model J secondary lever

### RETROFIT KITS (Converts to Adjustable Spring)

PART #	DESCRIPTION
AC1-74	W/ adjustable cover (for secondary pressure)

COBRA



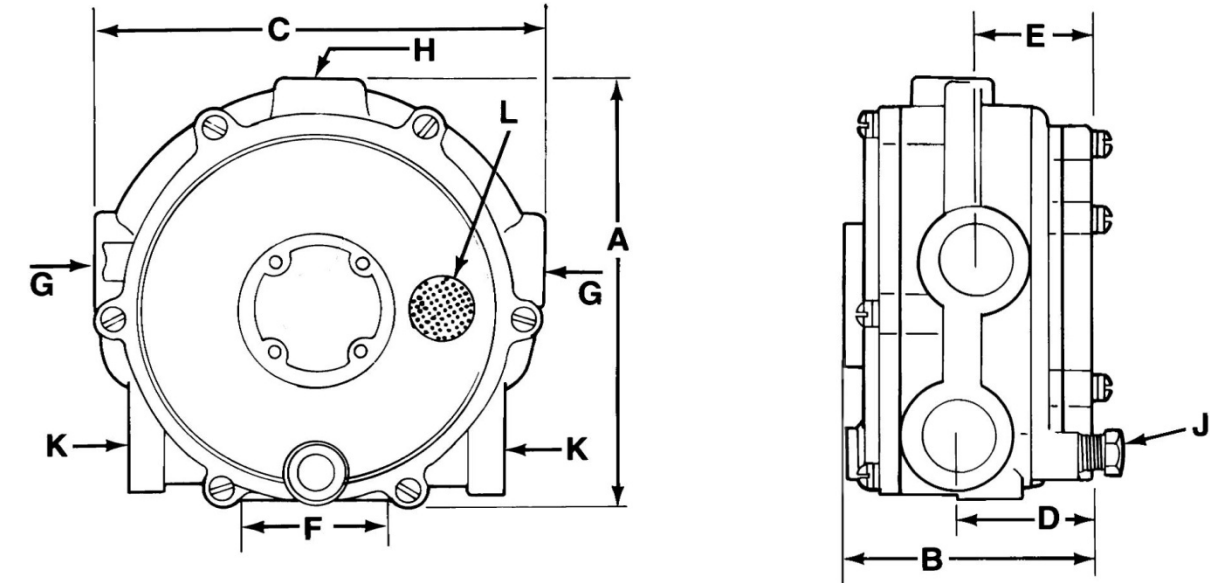
DESCRIPTION

The Cobra regulator/vaporizer delivers superior performance and excellent pressure output consistency. Cobra offers greater service life and is ideal for applications with controlled emissions. Its primary pin design and Fluorosilicone diaphragm offer superior chemical resistance, resistance to over pressurization, and cold weather operation. Use of the standard blue secondary spring provides -1.5" w.c. (0.37 kPa). The optional orange secondary spring, provides -0.5" w.c. (0.12 kPa) output.

SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor
Inlet Pressure	
Maximum.....	312 psi (21.51 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure (Nominal)	
COBRA (blue spring) .....	-1.5" w.c. (-0.37 kPa)
COBRA-I (orange spring).....	-0.5" w.c. (-0.12 kPa)
HP/kW Rating .....	100 hp (74.6 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Required for LPG Liquid
Mounting Position .....	Vertical recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 or HD-10 specified LPG fuel.
Diaphragm Material .....	Silicone and Fluorosilicone
Applications .....	Stationary, mobile, industrial, and automotive
Certification .....	UL (AU1502), Inquire for specific ECE approval

DIMENSIONS



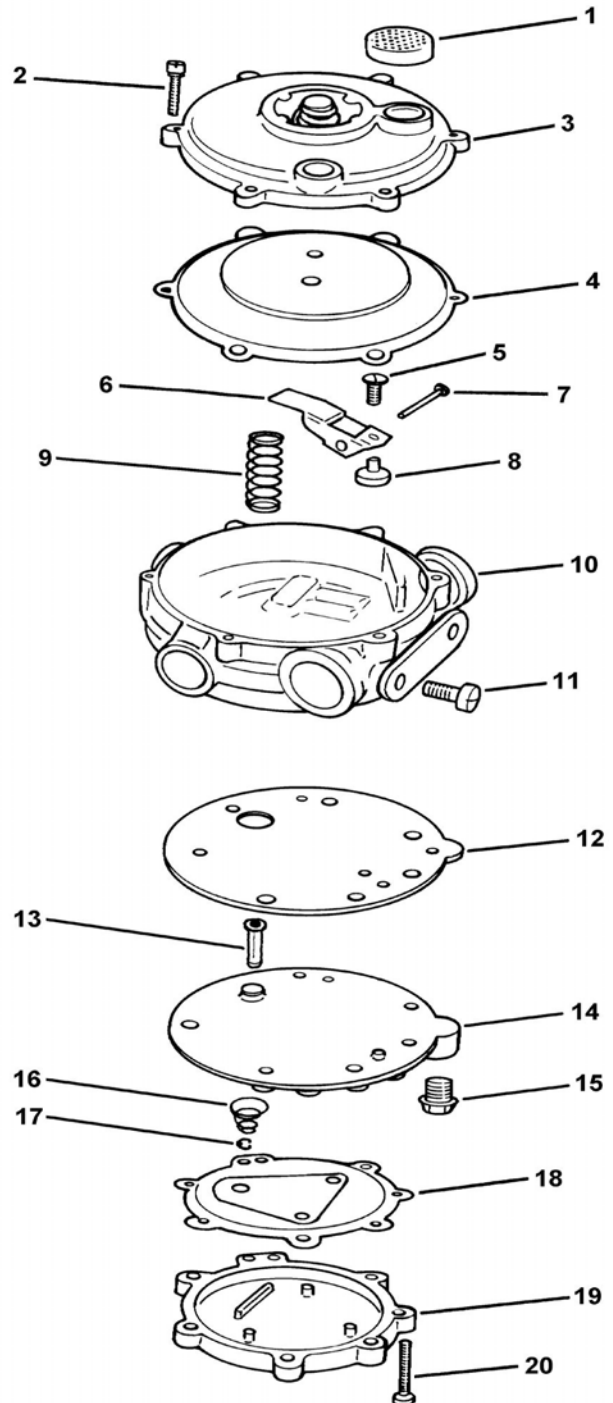
	A	B	C	D	E	F	G	H	J	K	L
PART#	OVERALL HEIGHT	OVERALL DEPTH	OVERALL WIDTH	BACK OF CONVERTER TO CTR. OF FUEL OUTLET	BACK OF CONVERTER TO CTR. OF WATER OUTLET	MOUNTING HOLES CTR. TO CTR.	COOLANT INLET AND OUTLET (NPT)	FUEL INLET (NPT)	PRIMARY TEST PORT (NPT)	FUEL OUTLET (NPT)	VENT BALANCE LINE CONNE. (NPT)
COBRA, COBRA-I	109MM (4.31")	66.5 MM (2.62")	117MM (4.62")	34.0 MM (1.34")	30.0mm (1.18")	41.3mm (1.625")	3/8"	1/4"	1/8"	1/2"	1/8"

## COMPONENTS

ITEM #	PART #	DESCRIPTION
1	NSS	Screen, atmospheric vent
2	NSS*	Screw, 8-32 x 7/8" Torx style (6)
3	NSS	Cover ass'y, secondary
4	NSS*	Diaphragm Assy, Secondary, Flourosilicone
5	NSS	Screw, 8-32 x 1/2" Torx style
6	NSS*	Lever, secondary
7	NSS	Pin, secondary fulcrum
8	NSS*	Seat, secondary
9	NSS	Spring, blue secondary, -0.37 kPa (-1.5" H2O), standard
		Spring, orange secondary, -0.12 kPa (-0.5" H2O), optional
10	NSS	Body ass'y, w/ jet
Not Shown	NSS	Plug, vapor outlet
11	NSS	Screw, 1/4-20 x 5/8" (2)
12	NSS*	Gasket, body to body cover plate
13	NSS*	Pin, valve primary
14	NSS	Plate, body cover
15	P3-13	Plug, 1/8 NPT, hex head
16	NSS*	Spring, primary
17	NSS*	E-ring, external
18	NSS*	Diaphragm ass'y, primary
19	NSS	Cover, primary
20	NSS*	Screw, 8-32 x 1-1/8" Torx style (7)

**NSS = Not Serviced Separately**

\* Included in Repair Kit



## MODELS & ACCESSORIES

MODEL	DESCRIPTION
COBRA	COBRA, W/AD1-27-5 (Fluorosilicone) diaphragm Neg. 373 Pa (Neg. 1.5 "H2O)
COBRA-I	COBRA, W/AD1-27-5 (Fluorosilicone) diaphragm Neg. 125 Pa (Neg. 0.5 "H2O)
CB-30177	Converter Ass'y, Cobra
<u>CB-30580-002*</u>	Converter Ass'y, Cobra
<u>CB-30580-004*</u>	Converter Ass'y, Cobra
CB-30712-001	Cobra Ass'y, Primerless Neg. 373 Pa (Neg. 1.5 "H2O)
CB-30712-002	Cobra Ass'y Primerless Neg. 125 Pa (Neg. 0.5 "H2O)
CB-R-772	Cobra w/ Right Hand Plug

### ACCESSORIES

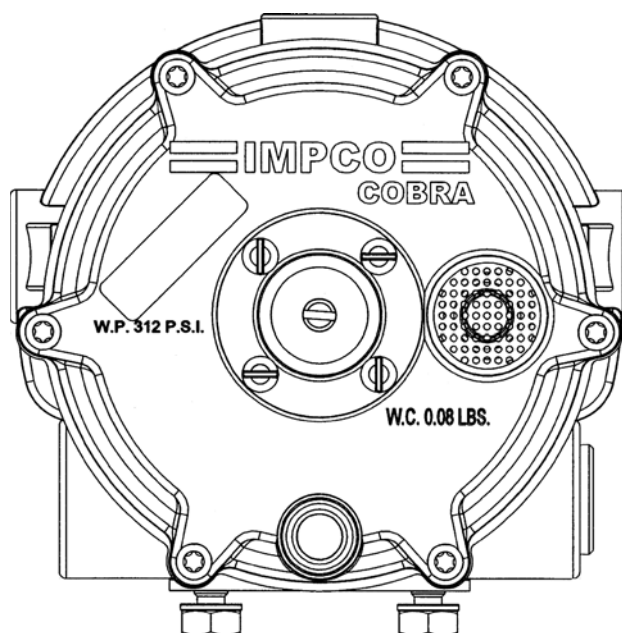
PART #	DESCRIPTION
SV	Start assist valve
<u>VPV*</u>	Vacuum power valve
AF4-14883	Check Valve
<u>AE3-31273-001*</u>	Controller, CDPOZ Electronic

### REPAIR KITS

PART #	DESCRIPTION
RK-COBRA	Standard repair kit
RK-C-717	Repair Kit, Cobra



## P-COBRA



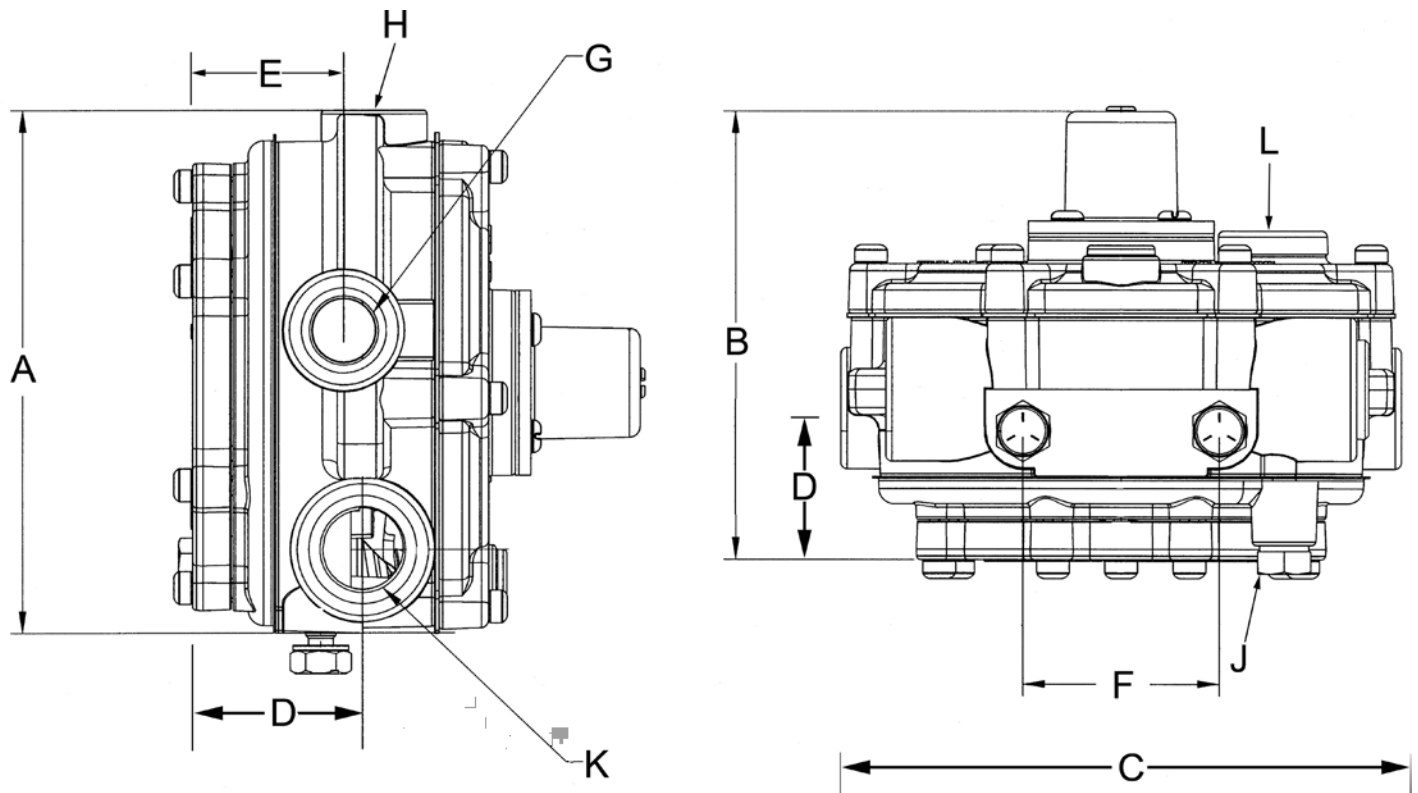
## DESCRIPTION

The P-Cobra regulator delivers superior performance and excellent pressure output consistency. It is recommended for positive pressure Natural Gas fuel systems and may also be used for positive pressure LPG applications. The P-Cobra offers a greater service life and is ideal for applications with controlled emissions. It offers an adjustable outlet pressure and its primary pin design and Fluorosilicone diaphragm provide superior chemical resistance and cold weather operation.

## SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure	
Maximum.....	312 psi (21.51 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure (Nominal) .....	See table on next page
HP/kW Rating .....	80 hp (59.7 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Optional
Mounting Position .....	Vertical recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 or HD-10 specified LPG fuel.
Diaphragm Material .....	Fluorosilicone
Applications.....	Mobile and industrial
Certification .....	Inquire for specific ECE approval

## DIMENSIONS



	A	B	C	D	E	F	G	H	J	K	L
				BACK OF CONVERTER TO CTR. OF FUEL OUTLET	BACK OF CONVERTER TO CTR. OF WATER OUTLET	MOUNTING HOLES CTR. TO CTR.	COOLANT INLET AND OUTLET (NPT)	FUEL INLET (NPT)	PRIMARY TEST PORT (NPT)	FUEL OUTLET (NPT)	VENT BALANCE LINE CONNE. (NPT)
P-COBRA	109.5mm (4.31")	91.4mm (3.60")	117MM (4.625")	41.3MM (1.625")	34.9mm (1.375")	41.3mm (1.625")	3/8"	1/4"	1/8"	1/2"	1/8"

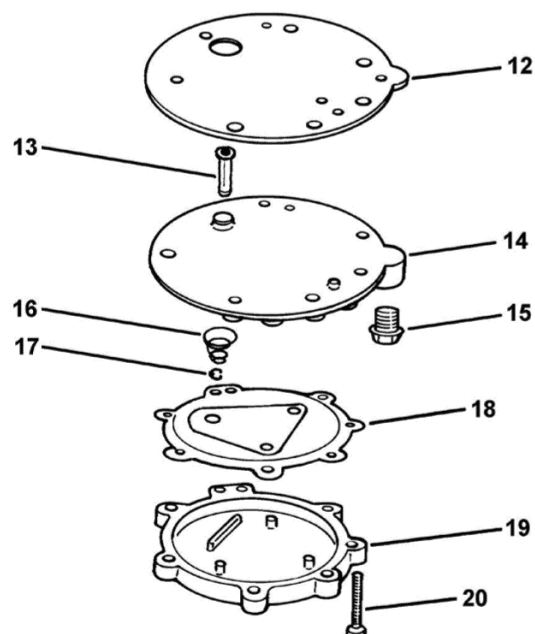
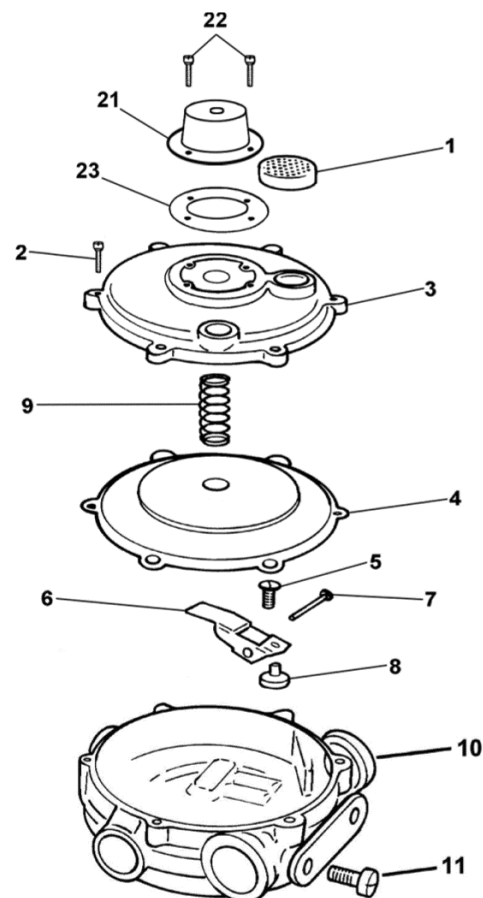
## P-Cobra Outlet Pressures

Part Number	Nominal Outlet Pressure
P-Cobra	Range: +7" (1.23 kPa) to +10" w.c. (1.23 kPa)
<u>P-Cobra-101</u>	Fixed: +4.5" w.c.
<u>P-Cobra-006</u>	Fixed: +9.5" w.c.

### COMPONENTS

ITEM #	PART #	DESCRIPTION
1	NSS	Screen, atmospheric vent
2	NSS	Screw, 8-32 x 7/8" Torx style (6)
3	NSS	Cover ass'y, secondary
4	NSS	Diaphragm Assy, Secondary, P-COBRA
5	NSS	Screw, 8-32 x 1/2" Torx style
6	NSS	Lever, secondary
7	NSS	Pin, secondary fulcrum
8	NSS	Seat, secondary
9	NSS	Spring, brown secondary
10	NSS	Body ass'y, w/ jet
Not Shown	NSS	Plug, vapor outlet
11	NSS	Screw, 1/4-20 x 5/8" (2)
12	NSS	Gasket, body to body cover plate
13	NSS	Pin, valve primary
14	NSS	Plate, body cover
15	P3-13	Plug, 1/8 NPT, hex head
16	NSS	Spring, primary
17	NSS	E-ring, external
18	NSS	Diaphragm ass'y, primary
19	NSS	Cover, primary
20	NSS	Screw, 8-32 x 1-1/8" Torx style (7)
21	NSS	Cover, Adj
22	NSS	Screw, 6-32 5/16" Sems Pnh Sltd
23	NSS	Gasket, Spr Hsg Mod Pev Pj

**NSS = Not Serviced Separately**

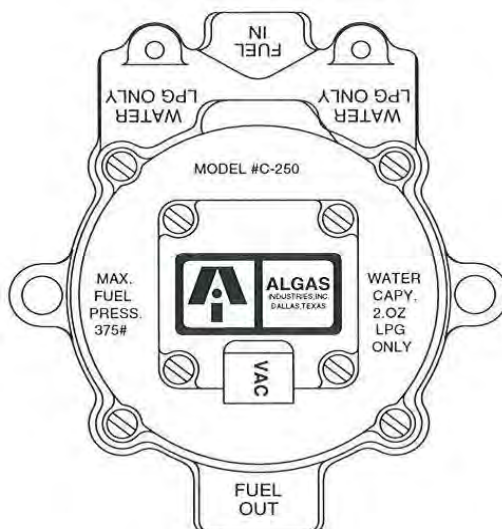


## MODELS & ACCESSORIES

### ACCESSORIES

PART #	DESCRIPTION
SV	Start assist valve
AF4-14883	Check Valve

## Model C250A (obsolete)



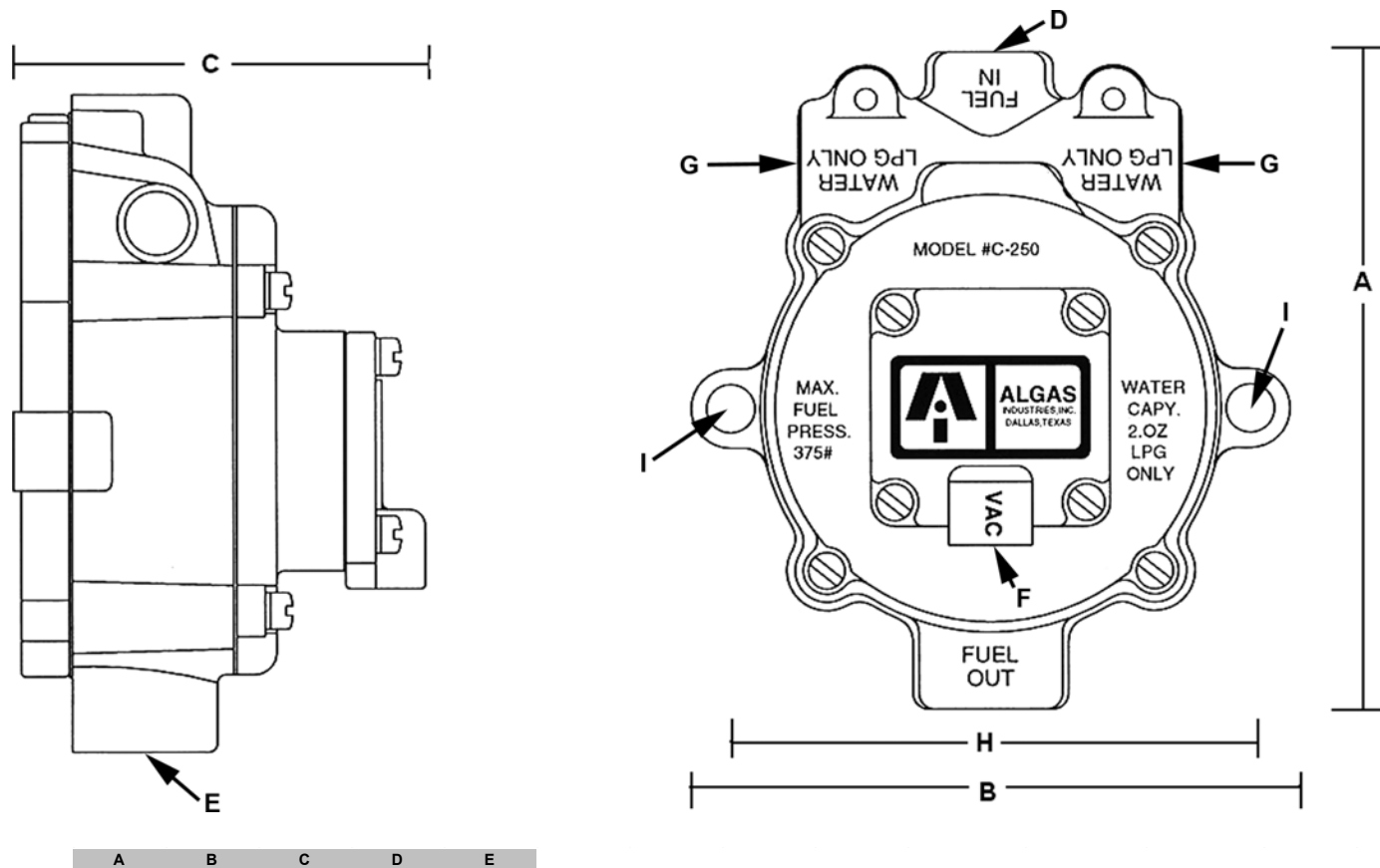
### DESCRIPTION

The ALGAS C250A model regulator/vaporizer is a two stage, pressure reduction regulator. Variations of the regulator use water heated or an air heated element (used with air cooled engine applications). The C250A includes two side mounting holes.

### SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor
Inlet Pressure	
Maximum.....	375 psig (25.9 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure (w/o Power Ram)	
C250A.....	1.5 psi (10.3 kPa)
C250A-1.....	1.0 psi (6.9 kPa)
HP/kW Rating	
C250A.....	115 hp (85.8 kW)
C250A-1.....	75 hp (55.9 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Required for LPG Liquid (Engine Coolant or Air Heated Element)
Mounting Position .....	Vertical, with outlet down recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 specified LPG fuel.
Diaphragm Material .....	NBR
Applications .....	Mobile, industrial, and automotive
Certification .....	UL (AU2317 & AU1502), Inquire for specific ECE approval

## DIMENSIONS

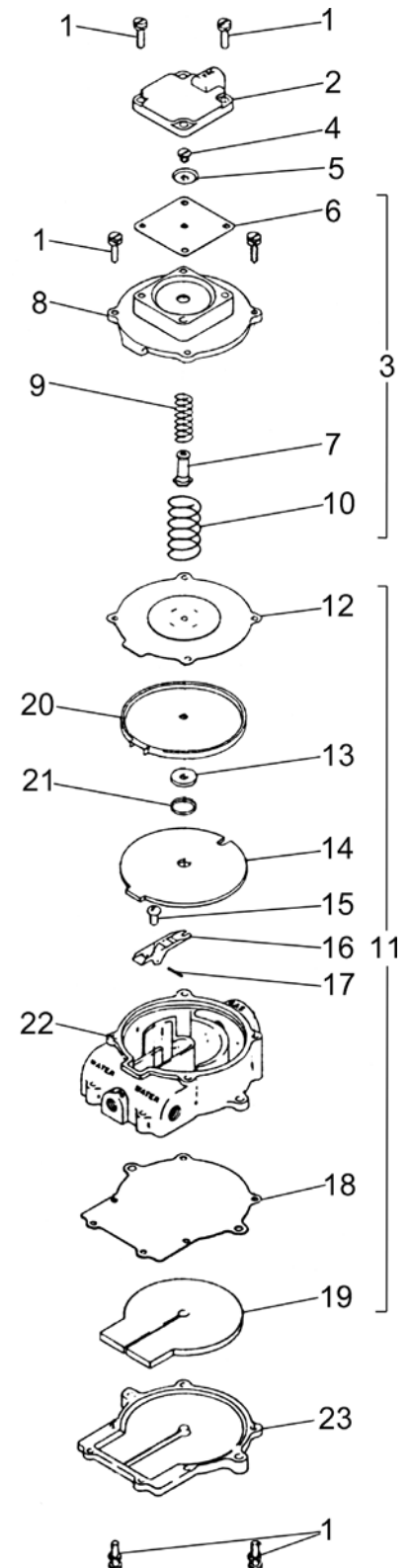


	OVERALL HEIGHT	OVERALL WIDTH	OVERALL DEPTH	FUEL INLET NPT	FUEL OUTLET NPT	VACUUM PORT NPT	INLET AND OUTLET NPT	MOUNTNG HOLE WIDTH	MOUNTNG HOLE SIZE	OUTLET PRESSURE (PSI)	OPERATING PRESSURE (PSI) W/O POWER RAM VACUUM	REGULATOR SPRING	POWER RAM SPRING
C250A	131.7 mm (5.1875")	119.5 mm (4.6875")	382.5 mm (3.25")	1/4"	3/8"	1/8"	3/8"	103 mm (4.063")	1/4"	1.25	1.50	Silver	Red
C250A-1	131.7 mm (5.1875")	119.5 mm (4.6875")	382.5 mm (3.25")	1/4"	3/8"	1/8"	3/8"	103 mm (4.063")	1/4"	1.25	1.00	Silver	Silver

## COMPONENTS

ITEM #	PART #	DESCRIPTION
1	NSS*	10-24 x 5/8" screw
2	NSS	Power-ram cover
3	2210*	Power-ram repair kit
4	NSS	8-32 x 1/4" screw
5	NSS	Power-ram diaphragm plate
6	NSS	Power-ram diaphragm
7	NSS	Power-ram pin
8	2250	Regulator cover
9	NSS*	Power-ram spring (red), for C250A-1
	NSS*	Power-ram spring (silver) for C250A-2
10	NSS	Regulator spring (silver) for C250A-9
	NSS	Regulator spring (red), for C250A-1, -2, -8
11	1-7010A	Regulator repair kit
12	NSS	Regulator diaphragm assembly
13	NSS	Liquid seal washer
14	NSS	Sponge
15	NSS	8-32 x 1/4" truss head screw
16	NSS	Regulator lever
17	NSS	Lever pin
18	NSS	Backplate gasket
19	NSS	Freeze pad
20	NSS	Liquid seal plate
21	NSS	Liquid seal washer retainer
	NSS	Converter body, C250A-3, -4
22	NSS	Converter body, C250A, A-1, -2, -8, -9
	NSS	Converter body, C250AH, AH-4
23	NSS	Backplate
24	NSS	10-24 x 1-3/4" screw (not shown)
25	NSS	Backplate gasket, C250A-3, -4 (not shown)
26	NSS	Water chamber body, C250A-3, -4 (not shown)

**NSS = Not Serviced Separately**



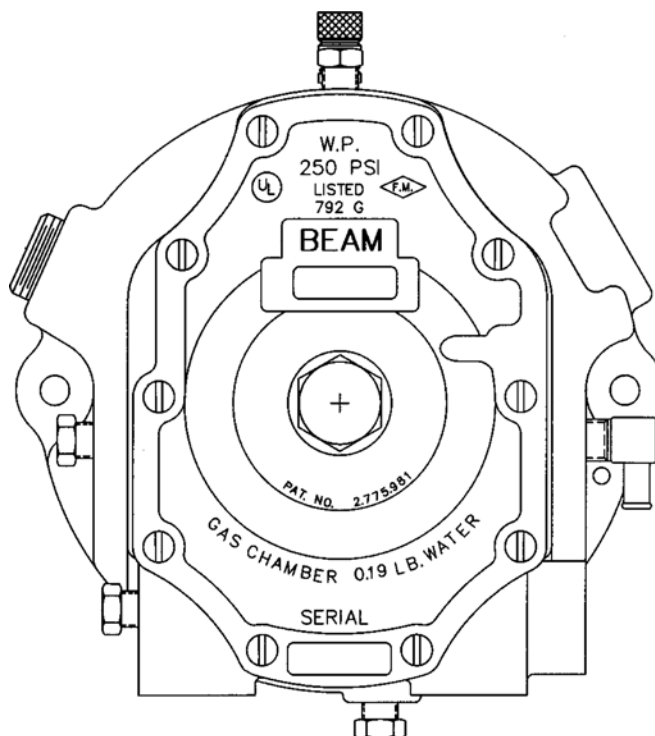
## ACCESSORIES

### REPAIR KIT

ITEM#	DESCRIPTION
1-7010	Kit, Minor, Overhaul C250
1-7012	Kit, Major, Overhaul C250A
2210	Power-ram repair kit



## Model 120A (obsolete)



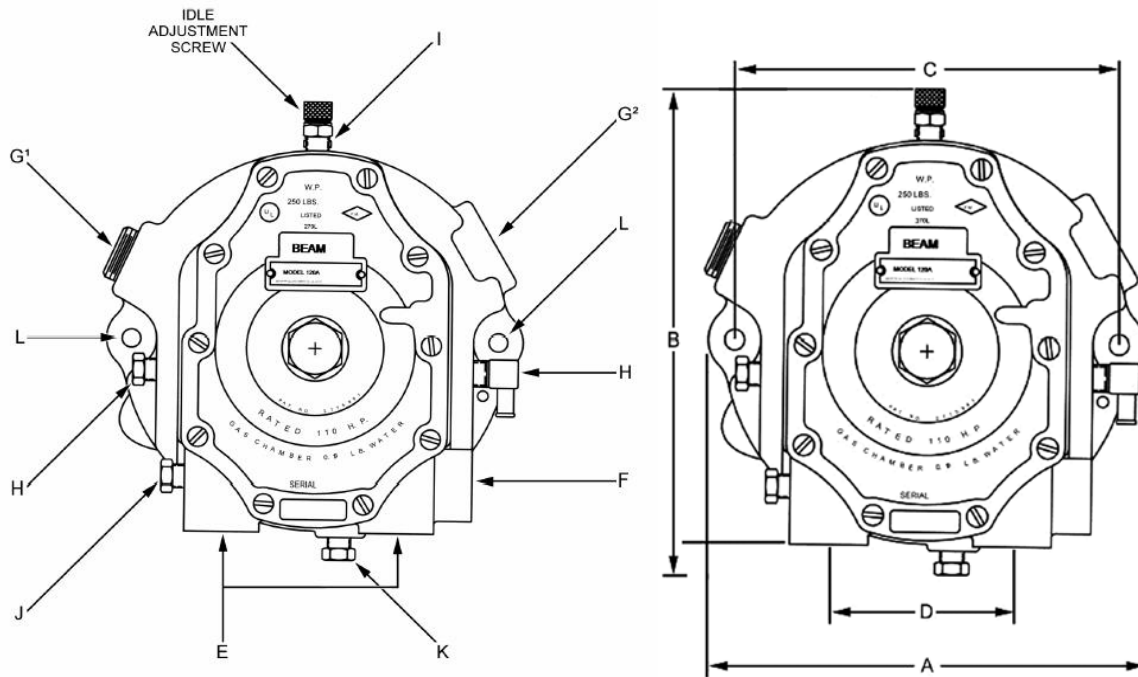
### DESCRIPTION

The 120A regulator is a two-stage engine coolant heated regulator/vaporizer. The 120A is equipped with an internal vacuum lock-off which automatically shuts off the fuel outlet when the engine stops.

### SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor
Inlet Pressure	
Maximum.....	250 psig (17.24 Bar)
Minimum.....	30 psi (206.8 kPa)
Outlet Pressure (Nominal) .....	-0.5" w.c. (-0.12 kPa)
HP/kW Rating .....	150 hp (111.9 kW)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 Micron
Heating Chamber Source .....	Required for LPG Liquid
Mounting Position .....	Vertical recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 specified LPG fuel
Diaphragm Material .....	Hydrin
Application .....	Mobile, industrial, and automotive
Certification .....	UL (AU1502), Inquire for specific ECE approval

## DIMENSIONS



	A	B	C	D	E	F
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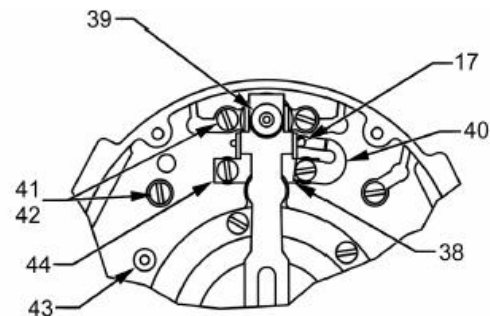
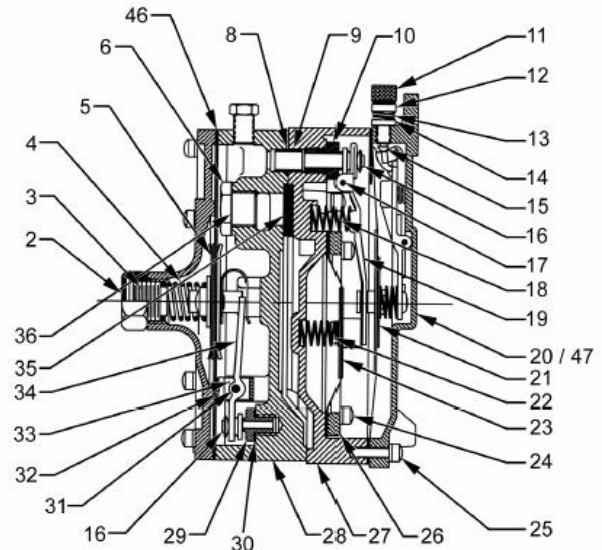
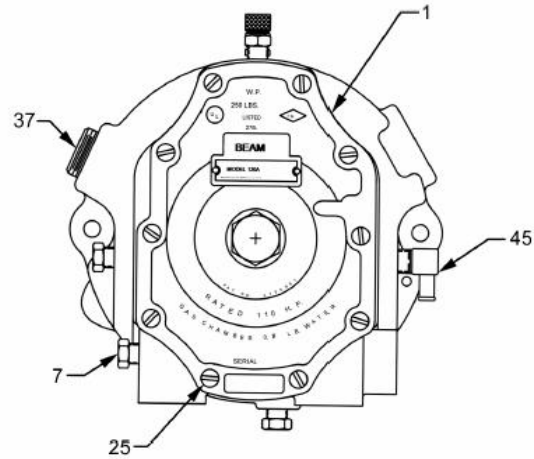
					COOLANT IN/OUT	COOLANT INLET AND OUTLET	FUEL INLET
MODEL	OVERALL WIDTH	OVERALL HEIGHT	OVERALL DEPTH	MOUNTING HOLES CTR. TO CTR.	CTR. TO CTR.	(NPT)	(NPT)
120A	146 mm (5.75")	157 mm (6.188")	130 mm (5.125")	140 mm (5.500")	63.5 mm (2.500")	3/8"	1/4"

	G1	G2	H	I	J	K	L	M
				PRIMARY				
MODEL	FUEL OUTLET (NPT)	FUEL OUTLET (NPT)	VACUUM PORTS (NPT)	TEST PORTS (NPT)	WATER DRAIN (NPT)	SECONDARY & OIL DRAIN (NPT)	MOUNTING HOLE DIAMETER	WITH IDLE SCREW
120A	1/2"	3/4"	1/8"	1/8"	1/8"	1/8"	6.4 mm (0.250")	Yes

## COMPONENTS

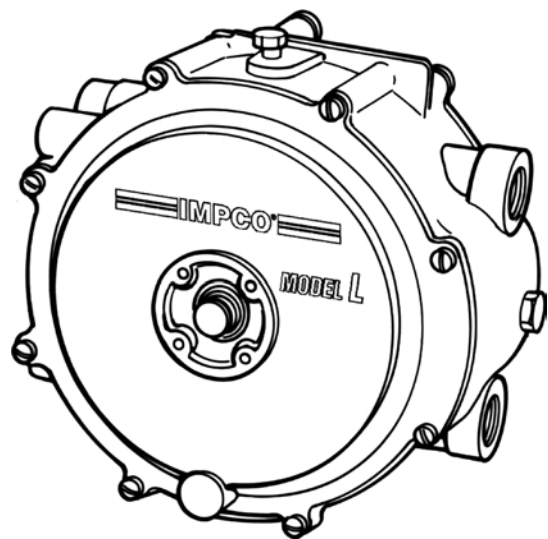
ITEM #	PART #	DESCRIPTION
1	NSS	Cover, primary machine
2	60-32A	Cap, spring retainer
3	NSS	Retainer, spring
4	NSS	Spring, primary pressure
5	NSS	Diaphragm ass'y, primary
6	NSS	Plug, water core
7	NSS	Plug, 1/8 NPT
8	NSS	Seal, o-ring
9	NSS	Tube, fuel passage
10	NSS	Orifice, secondary regulator
11	NSS	Screw, idle adjustment
12	NSS	Sleeve, spacer
13	NSS	Spring, idle adjustment
14	NSS	Cup, spring retainer
15	NSS	Pin, primer
16	3BRV	Valve, viton face
17	NSS	Pin, secondary pivot
18	NSS	Spring, secondary lever
19	NSS	Lever, secondary regulator
20	NSS	Cover, sub-ass'y
21	120-22	Diaphragm, secondary
22	NSS	Spring, vacuum lock
23	NSS	Diaphragm, vacuum lock
24	NSS	Screw, 10-32 UNF-2A
25	NSS	Screw, 10-32 UNF-2A
26	NSS	Ring, vacuum lock
27	NSS	Body, secondary
28	NSS	Body, converter
29	NSS	Orifice, primary regulator
30	NSS	Gasket, primary orifice
31	NSS	Pin, primary pivot
32	NSS	Screw, 10-32 UNF-2A
33	NSS	Bracket, primary lever
34	NSS	Lever, primary regulator
35	NSS	Plug, neoprene expansion
36	NSS	Gasket, plug
37	NSS	Plug, 1/2"-14 NPT
38	NSS	Bracket, secondary lever
39	NSS	3 br, cupped spring
40	NSS	Keeper
41	NSS	Screw, fillister head, 10"-32 thread w/patch lock
42	NSS	Washer
43	NSS	Fitting hose, 1/8 NPT x 1/4" x 90'
44	NSS	Seal, o-ring
45	F4-8	Screw, 10"-32 UNF-2A
46	NSS	Gasket, primary diaphragm
47	NSS	Cover, secondary

NSS = Not Serviced Separately



PART #	DESCRIPTION
120A-RBK	Kit, Rebuilding
120A-RCK	Kit, Complete Rebuilding
120A-RK	Kit, Repair
A120-10R	Diaphragm Repair Kit, Primary

Model L



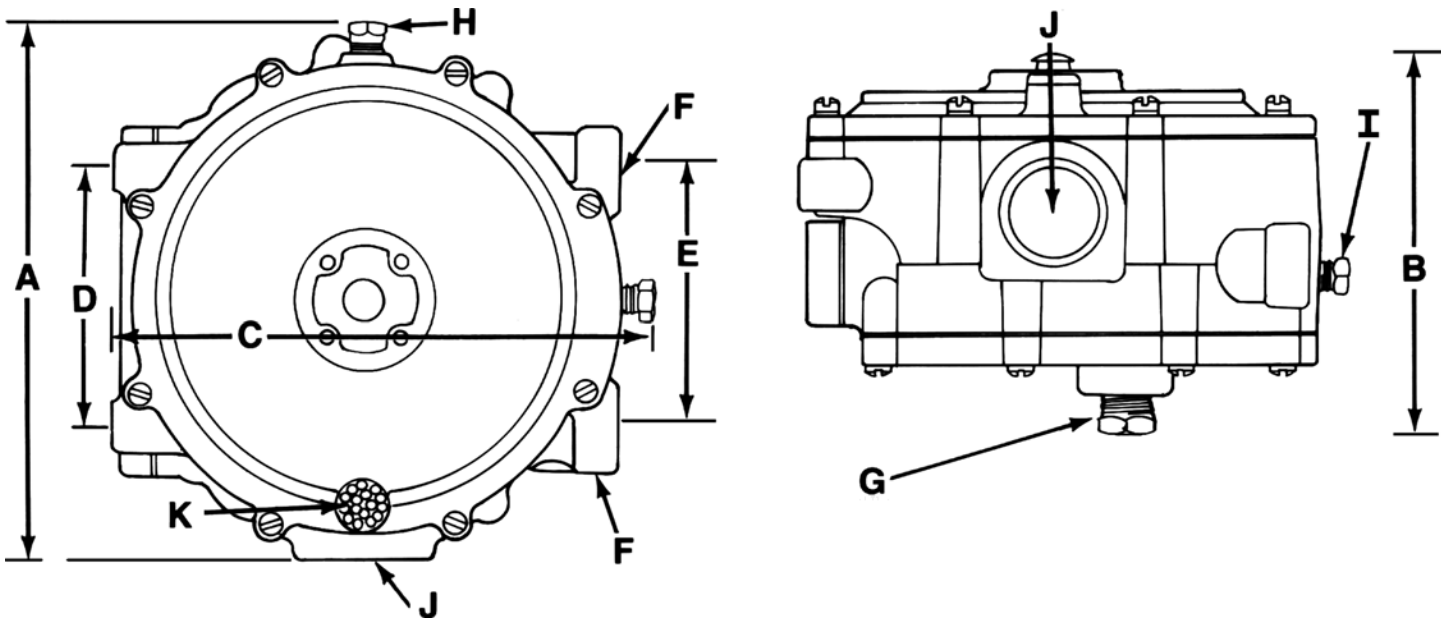
DESCRIPTION

The Model L is a two stage regulator/vaporizer. These units are coolant heated and are able to provide liquid vaporization to supply up to 325 hp (242.4 kW) peak or 200 hp (149.1 kW) continuous in industrial engine applications. The Model L regulator provides a negative outlet pressure of -1.5" w.c. (-0.37 kPa). No optional pressures are available. The Model L offers economical performance with full features; rear fuel inlet, and primary and secondary diagnostic test ports. Optional silicone diaphragm materials are also available.

SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor
Inlet Pressure	
Maximum.....	312 psi (21.51 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure (Nominal) .....	-1.5" w.c. (0.37 kPa)
HP/kW Rating .....	325 hp (242.4 kW) peak, 200 hp (149.1 kW) continuous
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Required for liquid LPG
Mounting Position .....	Vertical, with outlet down recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 specified LPG fuel.
Applications .....	Mobile, industrial and automotive
Certification .....	UL (AU1502), Inquire for specific ECE approval

DIMENSIONS

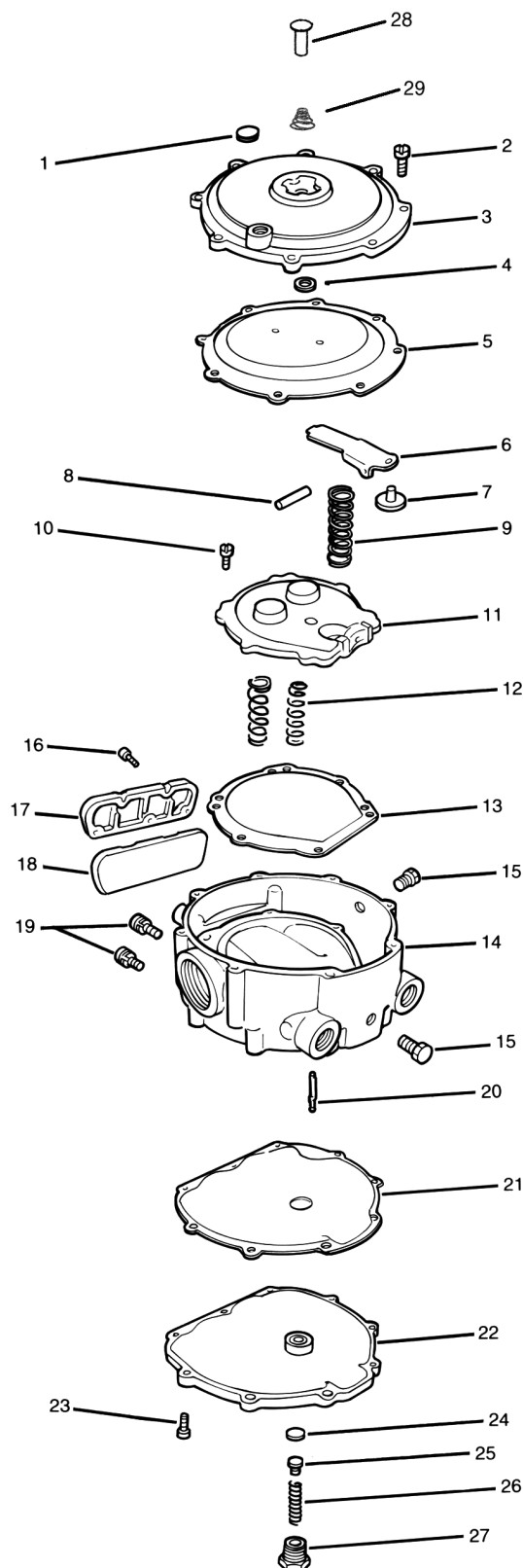


	A	B	C	D	E	F	G	H	I	J	K
	OVERALL HEIGHT	OVERALL DEPTH	OVERALL WIDTH	MOUNTING HOLES CTR. TO CTR.	COOLANT INLET AND OUTLE CTR. TO CTR.	COOLANT INLET AND OUTLET (NPT)	FUEL INLET (NPT)	SECONDARY TEST PORT (NPT)	PRIMARY TEST PORT (NPT)	FUEL OUTLET (NPT)	VENT BALANCE LINE CONNECTION (NPT)
LB, LB-2	160mm (6.313")	110mm (4.313")	165mm (6.500")	76.2mm (3.00")	76.2mm (3.00")	3/8"	1/4"	1/8"	1/8"	1"	1/8"

## COMPONENTS

ITEM#	PART#	DESCRIPTION
1	S7-1	Screen, atmospheric vent
2	NSS*	Screw, 8-32 x 5/8" SEMS (8)
3	NSS	Cover ass'y, secondary
4	NSS*	Washer, hand primer
5	NSS*	Diaphragm ass'y, secondary, Hydrin
6	NSS*	Diaphragm ass'y, secondary, Silicone
7	NSS*	Lever, secondary
8	NSS	Pin, secondary lever fulcrum
9	NSS	Spring, secondary regulator (blue)
10	NSS*	Screw, 8-32 x 3/8" SEMS (2)
11	NSS	Cover, primary diaphragm
12	NSS	Spring, primary regulator
13	NSS*	Diaphragm ass'y, primary
14	NSS	Body ass'y
15	P3-13	Plug, hex head, 1/8 NPT
16	NSS*	Screw, 8-32 x 5/8" SEMS (5)
17	NSS	Cover, water passage
18	NSS*	Gasket, water passage
19	NSS	Screw, 1/4-20 x 5/8" SEMS (2)
20	NSS	Pin, primary valve
21	NSS*	Gasket, vaporizing chamber
22	NSS	Cover, vaporizing chamber
23	S1-3*	Screw, 10-24 x 5/8" SEMS (9)
24	NSS*	Seat, primary
25	NSS*	Seat support, primary
26	NSS	Spring primary valve
27	NSS	Bushing, fuel inlet
28	NSS	Pin, Primer
29	NSS	Spring, Primer

\* Item included in repair kit

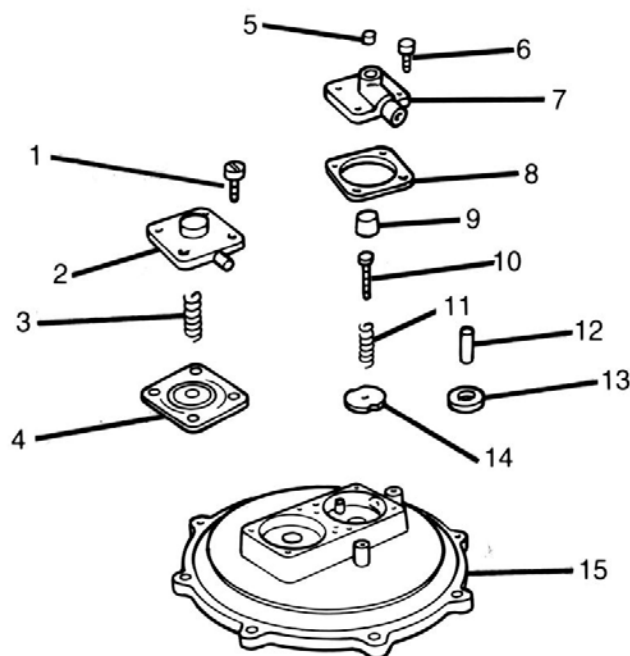




## COMPONENTS (CONTINUED)

### COVER (L-20 SERIES WITH EC1)

ITEM#	PART #	DESCRIPTION
1	NSS	Screw, 8-32 x 5/8" SEMS (4)
2	NSS	Cover, diaphragm
3	NSS	Spring, diaphragm
4	NSS	Diaphragm ass'y, for EC1
5	NSS	Plug, 1/16 NPT
6	NSS	Screw, 8-32 x 5/8" SEMS (4)
7	NSS	Cover, EC1-3
8	NSS	Gasket, EC1 body
9	NSS	Spring, valve
10	NSS	Screw adjustment, 6-32 x 7/8"
11	NSS	Screw, adjustment lock
12	NSS	Screw, Allen set, 10-32 x 3/4"
13	NSS	Nut, 10-32
14	NSS	Valve, disk
15	NSS	Cover ass'y, secondary, w/ EC1



### FUEL CONTROL VALVES

PART #	DESCRIPTION
SV **	Start assist valve, electric solenoid
VPV * **	Vacuum power valve
FCV*	Fuel control valve, computer feedback system

\*\* Use in secondary accessory port.

### REPAIR KITS

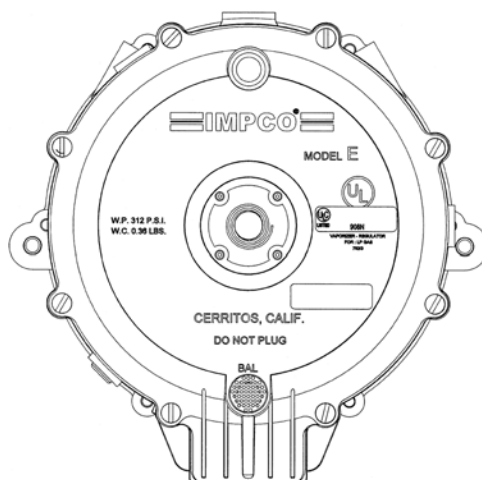
PART #	DESCRIPTION
RK-L	For model L
RK-L-2	For model L, w/ silicone diaphragm

**NSS = Not Serviced Separately**

### GAUGE

PART #	DESCRIPTION
G2-2	For Models E & L secondary lever

## Model E & PE



## DESCRIPTION

The model E & PE are engine heated two-stage regulator/vaporizers. The model E provides a choice of two negative outlet pressures. A “B” blue secondary spring provides a -1.5” w.c. (-0.37 kPa) output and an optional “O” orange secondary spring provides -0.5” w.c. (-0.12 kPa) output. A manual primer is standard on the Model E.

The model PE provides a positive outlet pressure for applications that require a positive feed system and/or the ability to vaporize liquid fuel. A heated regulator/vaporizer is not required of CNG (it is recommended that the Model PEV be used for these systems). Additional mixture stability is possible with the PE as a result of a more consistent fuel temperature gained through the use of the heated labyrinth. The PE is supplied as a fixed outlet pressure regulator but can be converted to an adjustable unit with the AC1-74 retrofit kit.

## SPECIFICATIONS

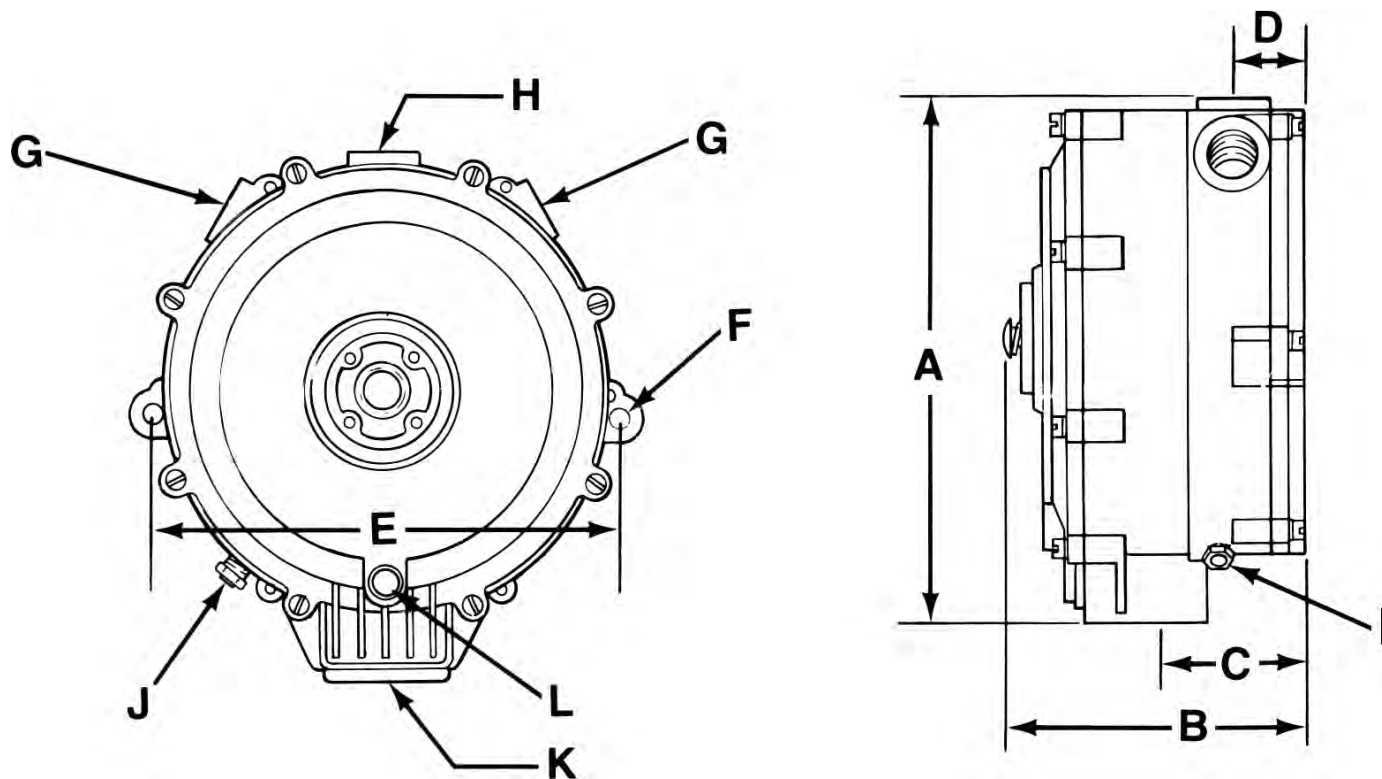
Fuel Type .....	LPG Liquid/Vapor and Natural Gas
Inlet Pressure	
Maximum.....	312 psi (21.51 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure (Nominal)	
EB .....	-1.5” w.c. (-0.37 kPa)
EO .....	-0.5” w.c. (-0.12 kPa)
PE .....	+5.0” w.c. (1.2 kPa)
HP/kW Rating .....	325 hp (242.3 kW) LPG
	200 hp (150 kW) where lower water flow-rate is a factor.
Operating Temperature Range....	-40° F to +250° F (-40° C to +121° C)
Fuel Filtration Required.....	40 micron
Heating Chamber Source .....	Required for liquid LPG
Mounting Position .....	Vertical (outlet down) recommended. Horizontal position can be used when fuel contamination can be controlled with HD-5 specified LPG fuel
Diaphragm Material .....	Hydrin, Silicone, and Fluorosilicone (optional)
Applications .....	Stationary, mobile, industrial, and automotive





Certification .....UL (AU2317 & AU1502), Inquire for specific ECE approval

# DIMENSIONS



Model E Shown

	A	B	C	D	E	F	G	H	I	J	K	L
STANDARD CONVERTER	OVERALL HEIGHT	OVERALL DEPTH	BACK OF CONVERTER TO CTR. OF FUEL OUTLET	BACK OF CONVERTER TO CTR. OF WATER OUTLET	MOUNTING HOLE CTR. TO CTR.	MOUNTING HOLES DIA.	COOLANT INLET AND OUTLET (NPT)	FUEL INLET (NPT)	PRIMARY TEST PORT (NPT)	SECONDARY TEST PORT (NPT)	FUEL OUTLET (NPT)	VENT BALANCE LINE (NPT)
EB, EB-2, EB-2ULC	184 mm (7.250")	102 mm (4.000")	50.8 mm (2.000")	25.0mm (0.98")	168 mm (6.625")	7.1 MM (0.281")	3/8"	1/4"	1/8"	1/8"	1"	1/8"
PE	184 mm (7.250")	114 mm (4.500")	50.8 mm (2.000")	25.0mm (0.98")	168 mm (6.625")	7.1 MM (0.281")	3/8"	1/4"	1/8"	1/8"	1"	1/8"
<u>PE-8*</u>	184 mm (7.250")	127.7 mm (5.03")	50.8 mm (2.000")	25.0mm (0.98")	168 mm (6.625")	7.1 MM (0.281")	3/8"	1/4"	1/8"	1/8"	1"	1/8"
<u>I-EB-2*</u>	184 mm (7.250")	102 mm (4.000")	50.8 mm (2.000")	25.0mm (0.98")	168 mm (6.625")	7.1 MM (0.281")	3/8"	1/4"	1/8"	1/8"	1"	1/8"

## COMPONENTS

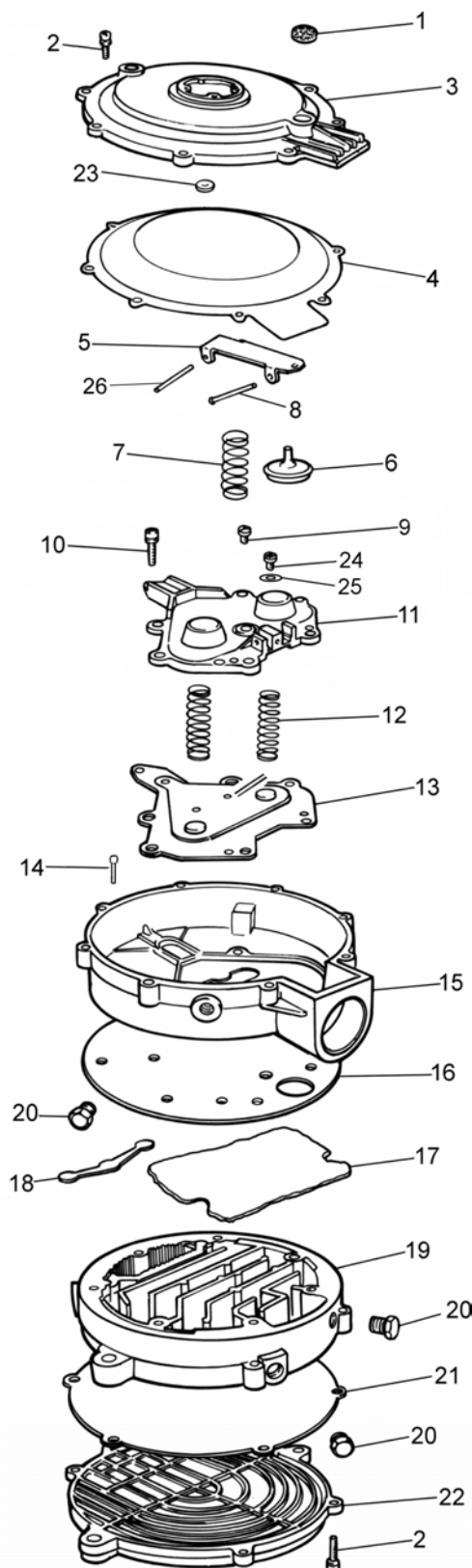
ITEM #	PART #	DESCRIPTION
1	NSS	Screen, Atmospheric Vent
2	S1-3*	Screw, 10-24 x 5/8" SEMS (8)
3	NSS	Cover, Secondary
4	NSS* (1)	Diaphragm, Secondary, Hydrin Model E
	NSS* (2)	Diaphragm, Secondary, Silicone Model E
	NSS* (3)	Diaphragm, Secondary, Fluorosilicone E
	NSS* (4)	Diaphragm, Secondary, Hydrin PE
	NSS* (5)	Diaphragm, Secondary, Silicone PE
5	NSS*	Lever, Secondary w/ or w/o Hole
6	NSS*	Seat, Secondary
7†	NSS	Spring, Secondary Regulator (Blue), Standard
	NSS	Spring, Secondary Regulator (Orange), Optior
8	NSS	Pin, Secondary Lever Fulcrum (Early Model)
	NSS	Pin, Secondary Lever Fulcrum (Later Model)
9	NSS*	Screw, 10-24 x 3/8" SEMS
10	NSS* (1)(2)(3)	Screw, 12-24 x 1 1/8" SEMS Model E Only
11	NSS	Cover, Primary Diaphragm (Early Model)
	NSS	Cover, Primary Diaphragm (Later Model)
12	NSS	Spring, Primary Regulator EB (2)
13	NSS*	Diaphragm Assy, Primary
14	NSS*	Pin, Primary Valve
15	NSS	Body, Regulator E Series
16	NSS*	Gasket, Regulator Body
17	NSS*	Sponge
18	NSS*	Seat, Primary
19	NSS	Body, Assy, Heat Exchanger
20	NSS	Plug, Hex Head, 1/8" NPT (3)
21	NSS*	Gasket, Heat Exchanger Cover
22	NSS	Cover, Heat Exchanger
23	NSS*	Washer, hand primer
24	NSS	Screw 8-32 x .25" (Later Model)
25	NSS	Flat Washer (Later Model)
26	NSS*	Pin, Lever Diaphragm Link

**NSS = Not Serviced Separately**

\* Repair kit components. (1) = RK-E; (2) = RK-E-2;

(3) = RK-E-3\*; (4) RK-PE; (5) = RK-TE\*

† Two vapor outlet pressures are available. The orange secondary spring gives -0.5" w.c. (-0.12 kPa) pressure. The blue secondary spring gives a -1.5" w.c. (-0.37 kPa) pressure.



## COMPONENTS (CONTINUED)

## C1-22-2 COVER

## PE/PEV SERIES

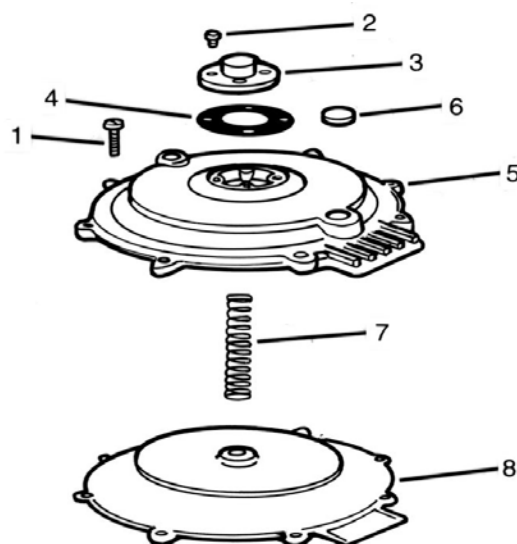
ITEM #	PART#	DESCRIPTION
1*	S1-3	Screw, 10-24 x 5/8" SEMS (8)
2*	NSS	Screw, 6-32 x 1/4" SEMS (4)
3	NSS	Housing, spring
4*	NSS	Gasket, spring housing
5	NSS	Cover ass'y
6	S7-1	Screen, atmospheric vent
7	NSS	Spring, secondary
	NSS	Spring, secondary, PEV-1-8 only
8*	NSS	Diaphragm assembly, secondary, Hydrin

## C1-22-2 COVER WITH AC1-74

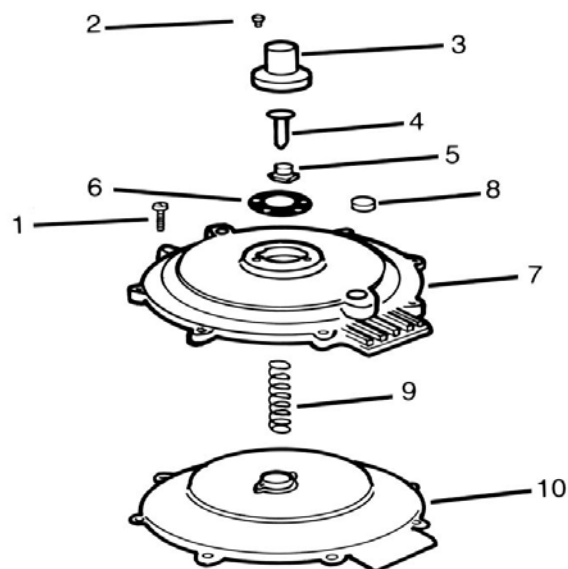
## PE/PEV-1 SERIES

ITEM #	PART#	DESCRIPTION
1*	S1-3	Screw, 10-24 x 5/8" SEMS (8)
2*	NSS	Screw, 6-32 x 1/4" SEMS (4)
3	NSS	Cover, adjustable PEV
4	NSS	Screw, PEV adjustment
5	NSS	Nut, PEV spring perch
6*	NSS	Gasket, spring housing
7	NSS	Cover assembly
8	S7-1	Screen, atmospheric vent
	NSS	3.7" to 6.5" w.c. (0.92 to 1.62 kPa)
9	NSS	7.0" to 14.0" w.c. (1.74 to 3.5 kPa)
	NSS	2.0" to 2.8" w.c. (.50 to 0.70 kPa)
	NSS	2.7" to 3.9" w.c. (.67 to 0.96 kPa)
10*	NSS	Diaphragm assembly secondary, Hydrin

NSS = Not Serviced Separately



C1-22-2 Cover Shown with the H3-3 fixed spring housing.



C1-22-2 Cover Shown with the optional AC1-74 Adjustable Spring Housing.

## STANDARD AND OPTIONAL EQUIPMENT

### FUEL CONTROL VALVES

PART #	DESCRIPTION
SV **	Start assist valve, electric solenoid
VPV* **	Vacuum power valve
FCV*	Fuel control valve, computer feedback system.

\*\*Use in secondary accessory port

### PRIMER

PART #	DESCRIPTION
<u>AB1-28*</u>	Mechanical primer, for E-series converters (also fits J- & L-series, cannot be used w/ECI)

### GAUGE

PART #	DESCRIPTION
G2-2	For Models E & L secondary lever

### REPAIR KITS

PART #	DESCRIPTION
RK-E	Repair Kit Model E, Hydrin Diaphragm
RK-E-2	Repair Kit Model E, w/Silicone Diaphragm
<u>RK-E-3*</u>	Repair Kit Model E, Fluorosilicone Diaphragm
<u>RK-TE*</u>	Repair Kit Model E, Turbo w/Silicone Diaphragm
RK-PE	Repair Kit Model PE, Hydrin Diaphragm

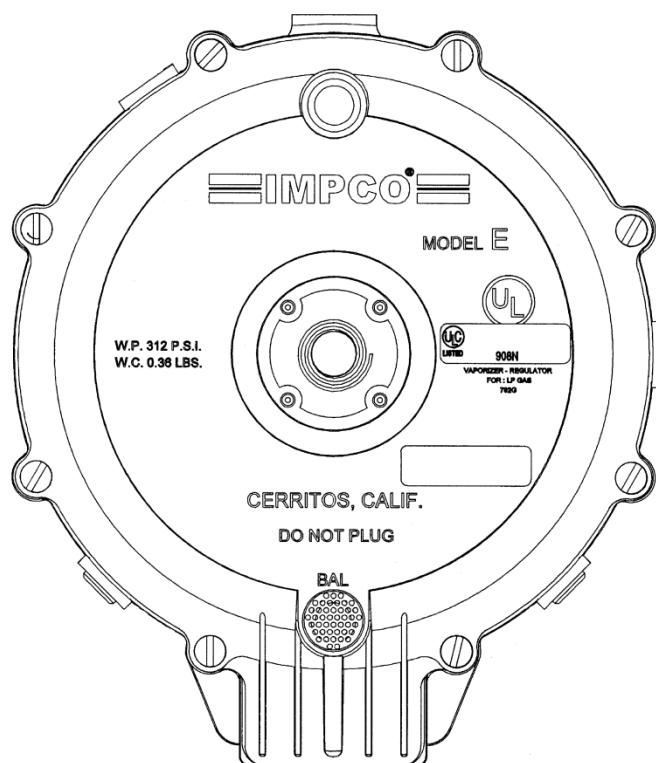
## Model EV & PEV

### DESCRIPTION

The Model EV & PEV are two-stage regulators for vapor fuel applications where vaporization is not required. Diagnostic test ports are standard for both the primary and secondary pressure chambers, and a choice of diaphragm materials are available. The EV comes with the standard “B” blue secondary spring with -1.5” w.c. and an optional “O” orange secondary spring is also available with a give up pressure of -0.5” w.c.

Specific PEV regulators are available in several fixed outlet pressures. Adjustable pressure units are also available. Fixed regulators can be converted in the field to adjustable, with the AC1-74 kit.

Adjustable units can be converted to fixed outlet pressure by using the H3-3 spring cover. This is preferred for applications that are not subject to fuel quality variations, or for those where emissions are a concern (the spring cover acts as a deterrent to unauthorized tampering).



Model EV Shown

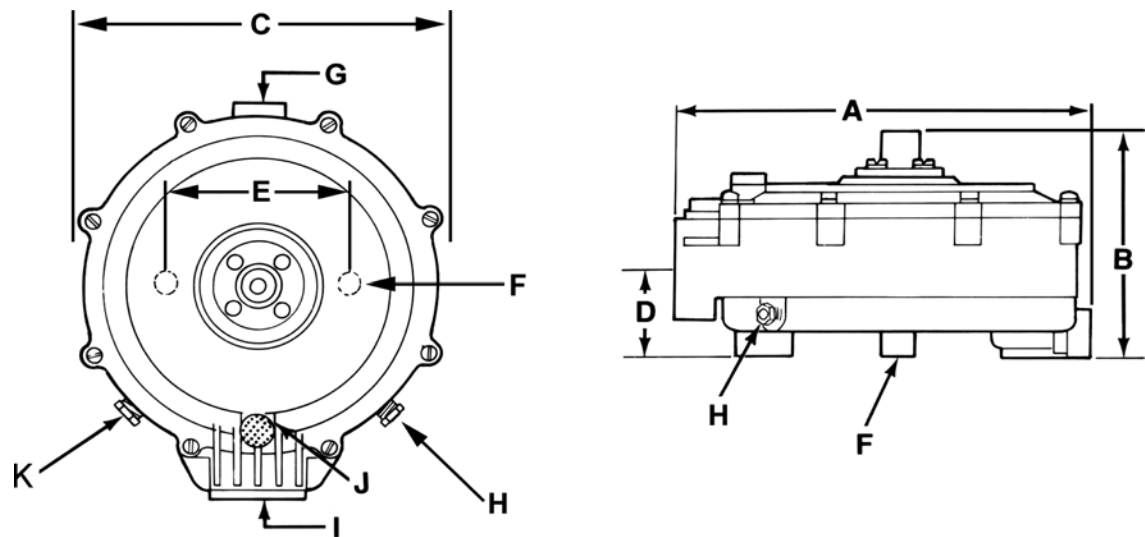
### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure	
Maximum.....	312 psi (21.51 Bar)
Minimum.....	30 psi (207 kPa)
Outlet Pressure	
EV.....	-1.5” w.c. (-0.37 kPa)
PEV.....	7.0" to 14.0" w.c. (1.74 to 3.5 kPa) w/ optional springs or AC1-74
HP/kW Rating .....	200 hp (149.1 kW) @ 150 psi (10.34 bar) inlet
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Heating Chamber.....	N/A
Mounting Position .....	Vertical (outlet down) recommended.
Diaphragm Material .....	Hydrin, Silicone, and Fluorosilicone (optional)
Applications.....	Stationary, mobile, and industrial
Certification	
EV.....	Inquire for specific ECE approval



PEV .....UL (AU2317), ULC, Inquire for specific ECE approval

DIMENSIONS



Model PEV Shown

	A	B	C	D	E	F	G	H	I	J	K
STANDARD CONVERTER	OVERALL HEIGHT	OVERALL DEPTH	OVERALL WIDTH	BACK OF CONVERTER TO CTR. FUEL OUTLET	MOUNTING HOLE CTR. TO CTR.	MOUNTING HOLES DIA.	FUEL INLET (NPT)	PRIMARY TEST PORT (NPT)	FUEL OUTLET (NPT)	VENT BALANCE LINE CONNECTION (NPT)	SECONDARY TEST PORT
EV	181 mm (7.250")	88.9 mm (3.500")	152 mm (6.000")	38.1 mm (1.500")	124 mm (5.000")	1/4"-20	1/4"	1/8"	1"	1/8"	1/8"
EV-2	181 mm (7.250")	88.9 mm (3.500")	152 mm (6.000")	38.1 mm (1.500")	124 mm (5.000")	1/4"-20	1/4"	1/8"	1"	1/8"	1/8"
PEV-1	181 mm (7.250")	88.9 mm (3.500")	152 mm (6.000")	38.1 mm (1.500")	124 mm (5.000")	1/4"-20	1/4"	1/8"	1"	1/8"	1/8"
<u>T-PEV-1*</u>	181 mm (7.250")	92 mm (3.630")	152 mm (6.000")	38.1 mm (1.500")	124 mm (5.000")	1/4"-20	1/4"	1/8"	1"	1/8"	1/8"

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

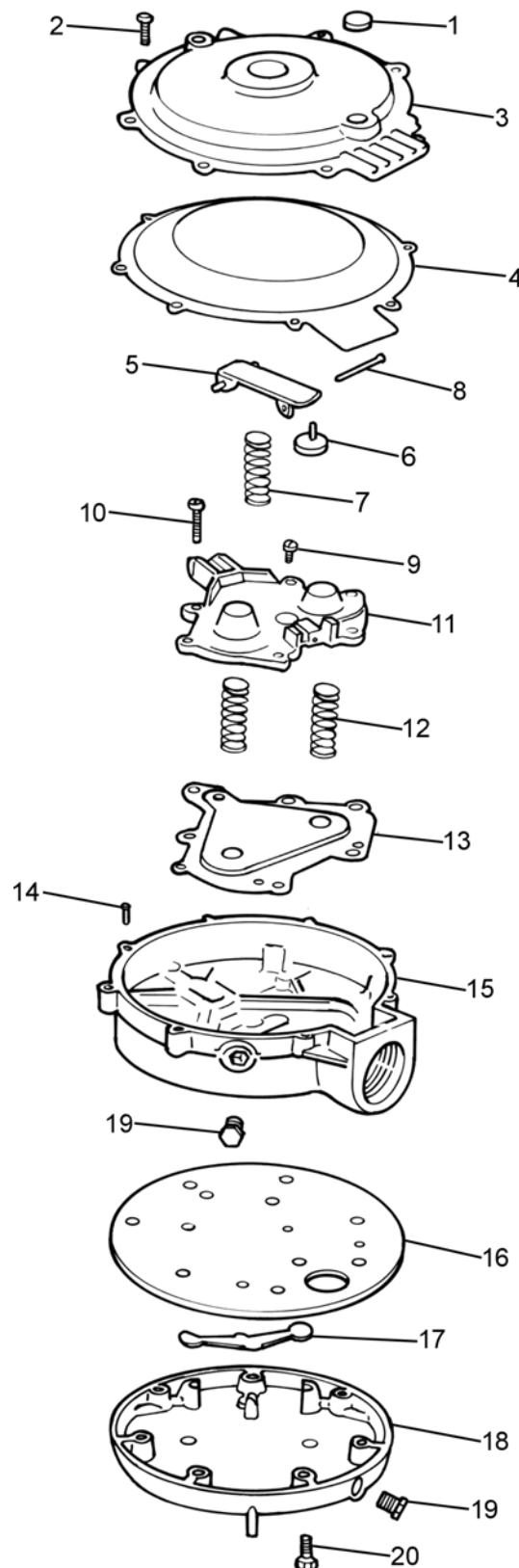


## COMPONENTS

ITEM #	PART #	DESCRIPTION
1	S7-1	Screen, atmospheric vent
2	S1-3	Screw, 10-24 x 5/8" SEMS (8)
3	NSS	Cover ass'y, front (EV only)
4	NSS	Diaphragm ass'y, secondary, Hydrin (EV)
	NSS	Diaphragm ass'y, secondary, silicone (EV-2)
5	NSS	Lever, secondary
6	NSS	Seat, secondary (new) standard
	NSS	Spring, secondary regulator (blue) standard (EV only)
7*	NSS	Spring, secondary regulator (orange) optional (EV only)
8	NSS	Pin, secondary lever fulcrum
9	NSS	Screw, 10-24 x 3/8" SEMS (2)
10	NSS	Screw, 12-24 x 1.0" SEMS (7)
11	NSS	Cover, primary diaphragm
12	NSS	Spring, primary regulator (2)
13	NSS	Diaphragm ass'y, primary
14	NSS	Pin, primary valve
15	NSS	Body, regulator E series
16	NSS	Gasket, regulator body
17	NSS	Seat, primary
18	NSS	Body, ass'y, regulator
19	NSS	Plug, 1/8 NPT, water drain (2)
20	NSS	Plug, hex head, 1/8 NPT (2)

**NSS=Not Serviced Separately**

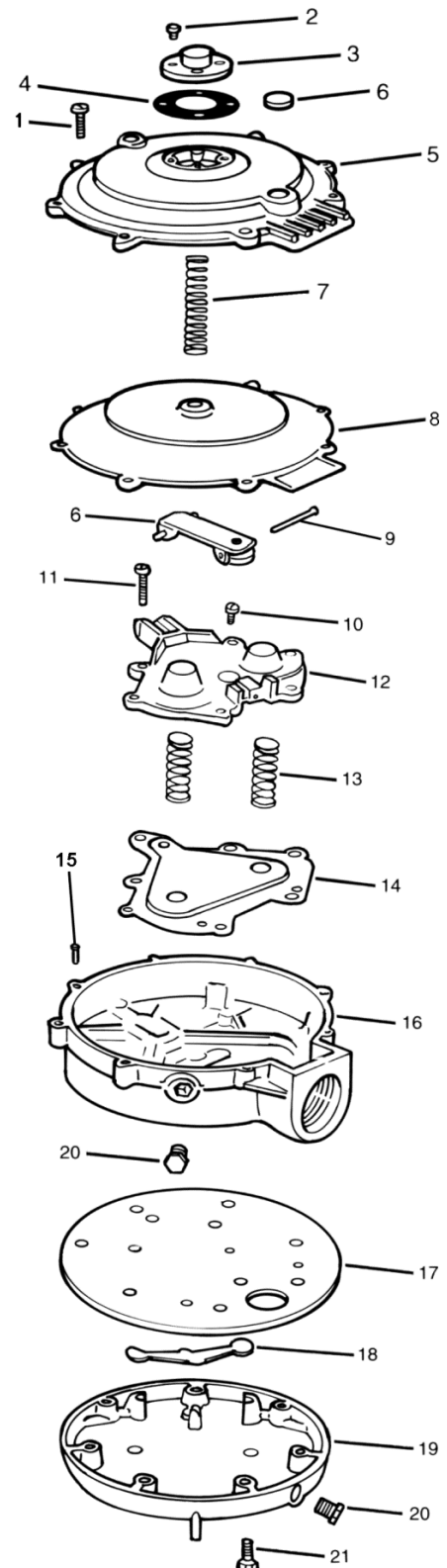
**Note:** Two vapor outlet pressures are available. The orange secondary spring gives -0.5" w.c. (-0.12 kPa) pressure. The blue secondary spring gives -1.5" w.c. (-0.37 kPa) pressure. To change any B regulator to O, change blue secondary spring to orange.



## COMPONENTS

ITEM #	PART #	DESCRIPTION
1*	S1-3	Screw, 10-24 x 5/8" SEMS (8)
2*	NSS	Screw, 6-32 x 1/4" SEMS (4)
3	NSS	Housing, spring
4*	NSS	Gasket, spring housing
5	NSS	Cover ass'y
6	S7-1	Screen, atmospheric vent
	NSS	Spring, secondary
7	NSS	Spring, Secondary (PEV-3)
	NSS	Spring, secondary, (PEV-1-8)
8*	NSS	Diaphragm assembly, secondary, Hydrin
9	NSS	Pin, secondary lever fulcrum
10*	NSS	Screw, 10-24 x 3/8" SEMS (2)
11*	NSS	Screw, 12-24 x 1.0" SEMS (7)
12	NSS	Cover, primary diaphragm
13	NSS	Spring, primary regulator (2)
14*	NSS	Diaphragm ass'y, primary
15	NSS	Pin, primary valve
16	NSS	Body, regulator E series
17*	NSS	Gasket, regulator body
18*	NSS	Seat, primary
19	NSS	Body, ass'y, regulator
20	NSS	Plug, 1/8 NPT, water drain
21	NSS	Plug, hex head, 1/8 NPT (2)

\*Repair Kit Components



## COMPONENTS (CONTINUED)

## C1-22-2 COVER

## PE/PEV SERIES

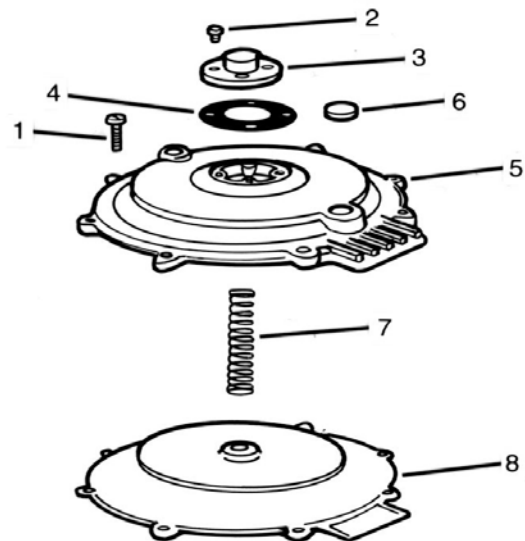
ITEM #	PART#	DESCRIPTION
1*	S1-3	Screw, 10-24 x 5/8" SEMS (8)
2*	NSS	Screw, 6-32 x 1/4" SEMS (4)
3	NSS	Housing, spring
4*	NSS	Gasket, spring housing
5	NSS	Cover ass'y
6	S7-1	Screen, atmospheric vent
7	NSS	Spring, secondary
	NSS	Spring, secondary, PEV-1-8 only
8*	NSS	Diaphragm assembly, secondary, Hydrin

## C1-22-2 COVER WITH AC1-74

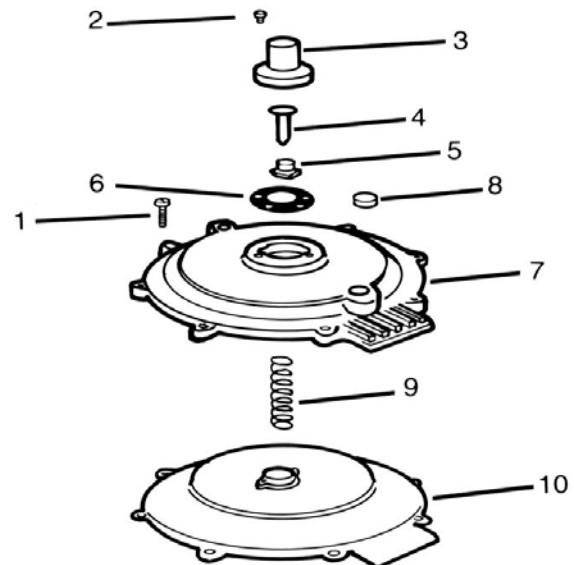
## PE/PEV-1 SERIES

ITEM #	PART#	DESCRIPTION
1*	S1-3	Screw, 10-24 x 5/8" SEMS (8)
2*	NSS	Screw, 6-32 x 1/4" SEMS (4)
3	NSS	Cover, adjustable PEV
4	NSS	Screw, PEV adjustment
5	NSS	Nut, PEV spring perch
6*	NSS	Gasket, spring housing
7	NSS	Cover assembly
8	S7-1	Screen, atmospheric vent
	NSS	3.7" to 6.5" w.c. (0.92 to 1.62 kPa)
9	NSS	7.0" to 14.0" w.c. (1.74 to 3.5 kPa)
	NSS	2.0" to 2.8" w.c. (0.50 to 0.70 kPa)
	NSS	2.7" to 3.9" w.c. (0.67 to 0.96 kPa)
10*	NSS	Diaphragm assembly secondary, Hydrin

NSS = Not Serviced Separately



C1-22-2 Cover Shown with the H3-3 fixed spring housing.



C1-22-2 Cover Shown with the optional AC1-74 Adjustable Spring Housing.

## ACCESSORIES

REGULATOR	SPRING NUMBER	APPROXIMATE PRESSURE RANGE
EV	S2-22	-1.5" w.c. (.37 kPa)
EV-2	S2-22	-1.5" w.c. (.37 kPa)
PEV-1	S2-37	3.7" to 6.5" w.c. (0.92 to 1.62 kPa)
	S2-42	7.0" to 14.0" w.c. (1.74 to 3.5 kPa)
	S2-106	2.0" to 2.8" w.c. (.50 to 0.70 kPa)
	S2-109	2.7" to 3.9" w.c. (.67 to 0.96 kPa)
<u>T-PEV-1*</u>	S2-106	2.0" to 2.8" w.c. (.50 to 0.70 kPa)

## OPTIONAL EQUIPMENT

PART #	DESCRIPTION
<u>AB1-28*</u>	Mechanical primer, EV series only
<u>AC1-74*</u>	Retrofit kit, PEV adjustable cover
SV**	Start assist valve, electric solenoid
VPV* **	Vacuum power valve
<u>FCV*</u>	Fuel control valve, computer feedback system.

\*\*Use in secondary accessory port

## REPAIR KITS

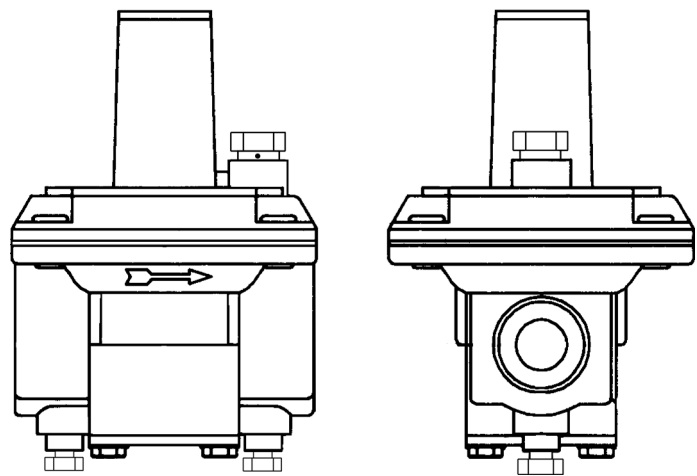
PART #	DESCRIPTION
RK-PE	Repair Kit, Mod E PE Eco
RK-PEV	Repair kit, Model PEV
RK-PEV-2	Repair kit, Model PEV, Silicone

PART #	DESCRIPTION
RK-E	Repair Kit Model E, Hydrin Diaphragm
RK-E-2	Repair Kit Model E, w/Silicone Diaphragm
<u>RK-E-3*</u>	Repair Kit Model E, Fluorosilicone Diaphragm
<u>RK-TE*</u>	Repair Kit Model E, Turbo w/Silicone Diaphragm
RK-PE	Repair Kit Model PE, Hydrin Diaphragm



AC1-74

Model IMP



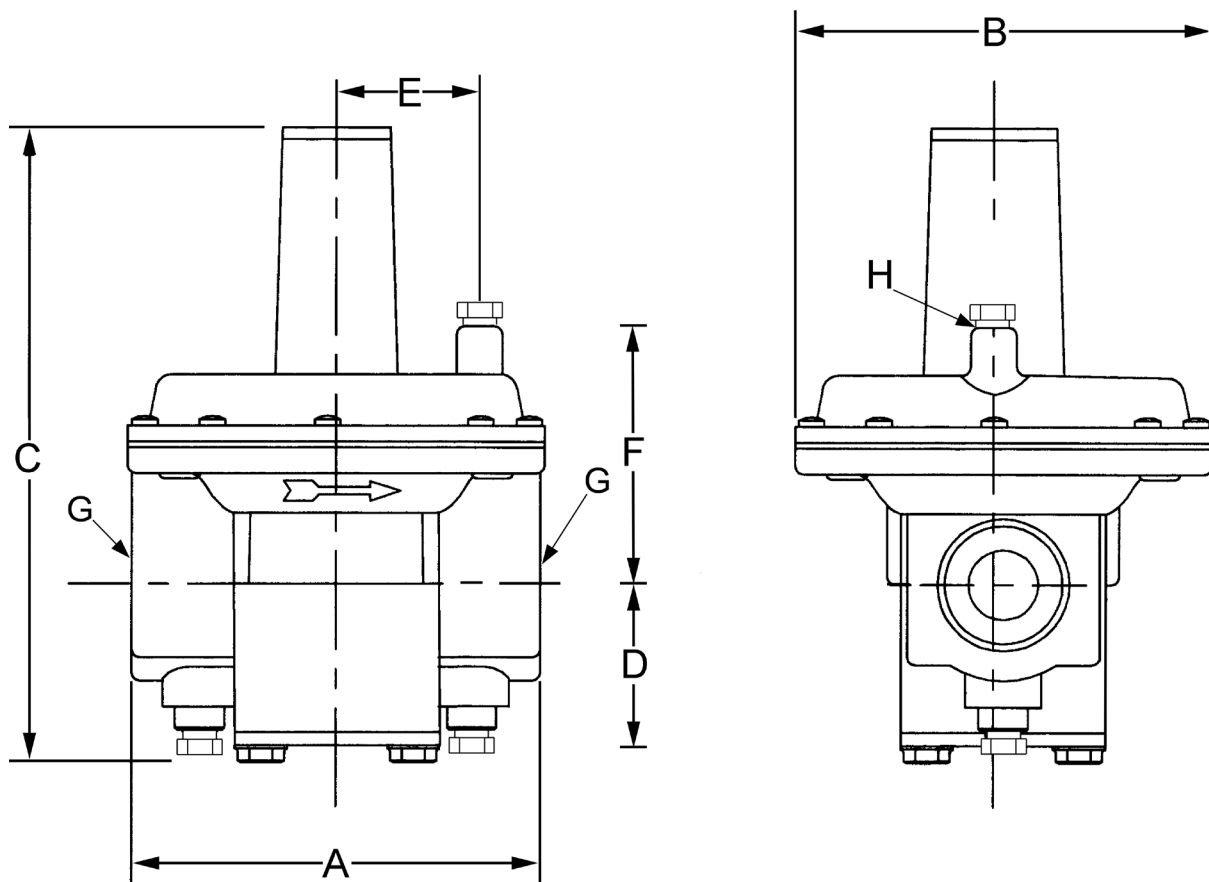
DESCRIPTION

The IMP model regulator is a single stage, adjustable straight through flow design suitable for Natural Gas, LPG Vapor. It can also be used with negative pressure applications with dealer authorized modifications.

SPECIFICATIONS

Fuel Type .....	LPG Vapor or Natural Gas
Inlet Pressure (Maximum) .....	20" w.c. (5.0 kPa)
Outlet Pressure (Nominal) .....	3" to 6" w.c. (0.75 to 1.5 kPa)
HP/kW Rating	
IMP53* .....	180 hp (134.2 kW)
IMP61 .....	350 hp (261.0 kW)
IMP81 .....	550 hp (410.0 kW)
IMP91 .....	850 hp (633.8 kW)
Operating Temperature Range .....	-40° F to +250° F (-40° C to +121° C)
Mounting Position .....	Vertical (as shown above)
Applications .....	Stationary and industrial
Certification .....	UL <b>Recognized (MH46841)</b>
*IMP53-50981-001 & IMP53-50981-002 Only	

## DIMENSIONS



PART#	OVERALL LENGTH	OVERALL WIDTH	OVERALL HEIGHT	BOTTOM TO CENTER OF FUEL OUTLET	CENTER LINE TO CENTER OF VENT BOSS	CENTER OF OUTLET TO TOP OF VENT BOSS	INLET AND OUTLET NPT	VENT BOSS DIAMETER
IMP53-50981-001	101.09mm (3.98")	98.55mm (3.88")	137.92mm (5.43")	35.05mm (1.380")	38.10mm (1.50")	60.45mm (2.380")	1"	1/8"*
IMP53-50981-002	101.09mm (3.98")	98.55mm (3.88")	137.92mm (5.43")	35.05mm (1.380")	38.10mm (1.50")	60.45mm (2.380")	3/4"	1/8"*
IMP61	111.12mm (4.375")	87.31mm (3.438")	163.51mm (6.4385")	42.06mm (1.656")	46.83mm (1.844")	73.02mm (2.875")	1 1/4"	1/8"
<u>IMP81*</u>	152.40mm (6.000")	228.60mm (7.000")	212.72mm (8.375")	51.58mm (2.031")	60.32mm (2.375")	79.37mm (3.125")	1 1/2"	1/8"
<u>IMP91*</u>	180.97mm (7.125")	231.77mm (9.125")	266.7mm (10.500")	61.91mm (2.438")	82.55mm (3.250")	106.36mm (4.188")	2"	1/8"

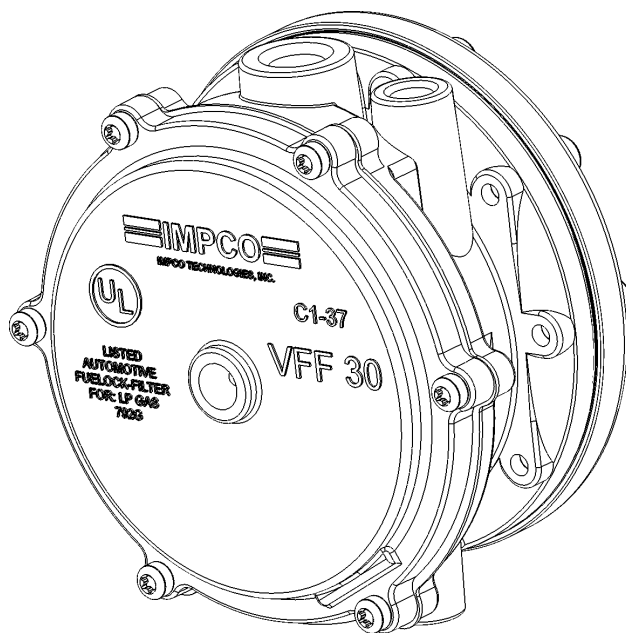
P/Ns IMP53-50981-001 & -002 include two diagnostic 1/8" test ports on the fuel inlet and outlets.



# Fuel Shut-Off / Lockoffs

VFF30.....	218
ET98.....	222
ET98 w/ Filter.....	225
FL-206 .....	228
FL-218-12V .....	230
FL-418-12V.....	232
FL-50046 / FL-52826.....	234
FL-51767 .....	238

## VFF30



### DESCRIPTION

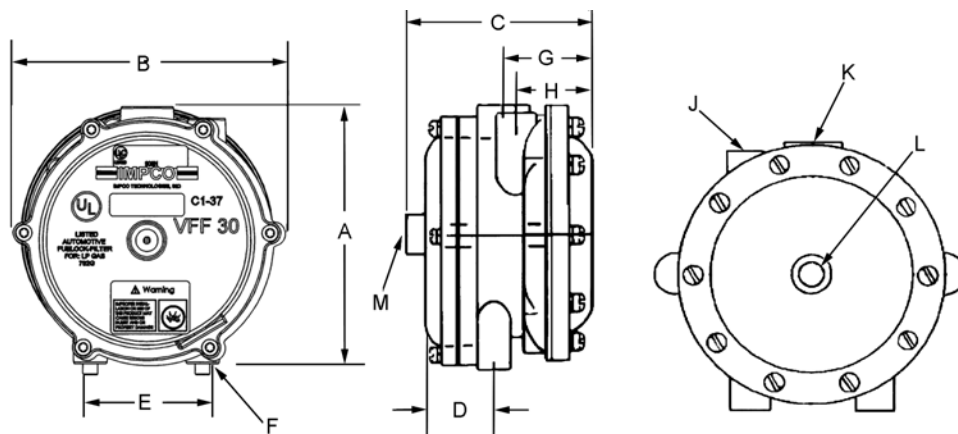
The Model VFF30 is a combination fuel lockoff and filter, engineered for use with LPG Liquid/Vapor or Natural Gas Vapor. It is available with Hydrin, Silicone and Fluorosilicone diaphragms. A pressure of 0.5" w.c. (0.12 kPa) is required to open the lockoff. The VFF30 is suitable for engines up to 325 hp (242.4 kW) at a maximum working pressure of 312 psi (21.5 Bar). The extra-large capacity filter element is fully serviceable.

### SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor or Low Pressure Natural Gas
Inlet Pressure (Maximum) .....	312 psi (21.5 Bar)
Flow Rate .....	26.7 CFM (12.6 L/s)
Operating Temperature Range.....	-40° F to +250° F (-40° C to +121° C)
Vacuum Activation	
Minimum Opening .....	0.5" w.c. (0.12kPa)
Fully Opened.....	11.5" w.c. (2.86 kPa)
Min. Operating Opening.....	2.0" w.c. (0.50 kPa)
Mounting Position .....	Vertical (as shown above)
Certification .....	UL (AU1502), Inquire for specific ECE approval



## DIMENSIONS



MODEL	DIAPHRAGM TYPE	OVERALL HEIGHT	OVERALL WIDTH	OVERALL DEPTH	FRONT OF FUEL LOCK TO			BACK OF FUEL LOCK TO CTR. OF FUEL OUTLET
					CTR. OF MOUNTING HOLE	MOUNTING HOLES CTR. TO CTR.	MOUNTING HOLE THREAD	
VFF30	HYDRIN	109 mm (4.28")	114 mm (4.50")	66.7 mm (2.625")	24 mm (.94")	48mm (1.88")	1/4"-20	37mm (1.44")
VFF30-2	Silicone	109 mm (4.28")	115 mm (4.50")	66.7 mm (2.625")	24 mm (.94")	48mm (1.88")	1/4"-20	37mm (1.44")
<u>VFF30-20-2*</u>	Silicone	109 mm (4.28")	114 mm (4.50")	66.7 mm (2.625")	24 mm (.94")	48mm (1.88")	1/4"-20	37mm (1.44")
VFF30-2-4	Silicone	109 mm (4.28")	115 mm (4.50")	66.7 mm (2.625")	24 mm (.94")	48mm (1.88")	1/4"-20	37mm (1.44")
VFF30-2ULC	Silicone	109 mm (4.28")	114 mm (4.50")	66.7 mm (2.625")	24 mm (.94")	48mm (1.88")	1/4"-20	37mm (1.44")
VFF30-3	Fluoro-silicone	109 mm (4.28")	115 mm (4.50")	66.7 mm (2.625")	24 mm (.94")	48mm (1.88")	1/4"-20	37mm (1.44")

MODEL	BACK OF FUEL LOCK TO CTR. OF VACUUM PORT	AIR VALVE VACUUM PORT (NPT)	FUEL OUTLET (NPT)	FUEL INLET (NPT)	PRIMER
VFF30	32mm (1.25")	1/8"	1/4"	1/4"	
VFF30-2	32mm (1.25")	1/8"	1/4"	1/4"	
<u>VFF30-20-2*</u>	32mm (1.25")	1/8"	1/4"	1/4"	ELECTRIC PRIMER
VFF30-2-4	32mm (1.25")	1/8" w/Check Valve	1/4"	1/4"	MANUAL PRIMER
VFF30-2ULC	32mm (1.25")	1/8"	1/4"	1/4"	
VFF30-3	32mm (1.25")	1/8"	1/4"	1/4"	

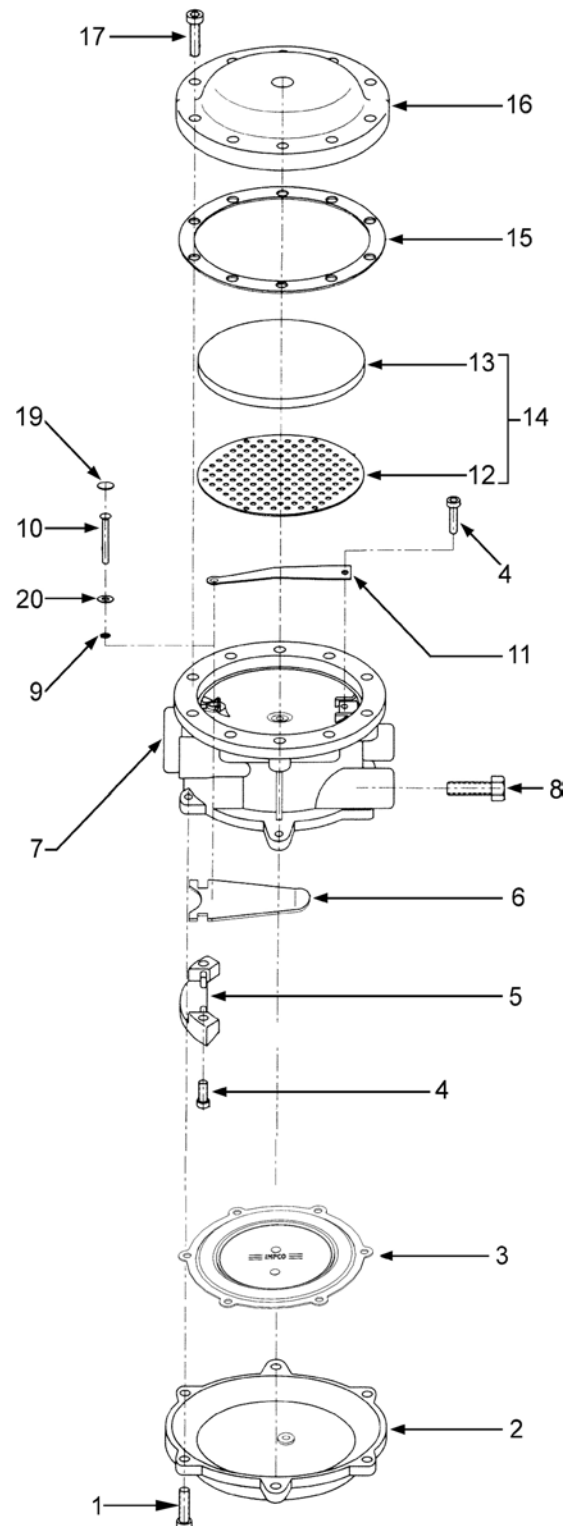
## COMPONENTS

ITEM#	PART#	DESCRIPTION
1*	NSS	Screw, 8-32 Taptite (6)
2	NSS	Diaphragm cover, (std., VFF30 only)
3*	NSS	Diaphragm Assy (Hydrin) (RK-VFF30)
	NSS	Diaphragm Assy, Silicone (RK-VFF30-2)
	NSS	Diaphragm Assy, Flourosilicone (RK-VFF30-3)
4*	NSS	Screw, 8-32 Taptite (3)
5	NSS	Fulcrum
6	NSS	Valve operating lever
7	NSS	Body ass'y
8	NSS	Screw, 1/4-20 x 5/8" SEMS (2)
9*	NSS	Seal, Lip Pin
10*	NSS	Valve, operating pin
11	NSS	Valve, spring
12*	NSS	Screen, back-up filter
13*	NSS	Filter
14*	NSS	Filter Assy (includes Filter & Screen)
15*	NSS	Filter cover gasket
16	NSS	Filter cover
17	NSS	Screw, 12-24 Taptite (10)
18	NSS	Fitting, ball check, assy (not shown, VFF30-2-4 only)
19*	NSS	Seat, VFF30
20*	NSS	Washer, Seal Retaining

### NSS = Not Serviced Separately

\* Repair Kit Components.

**Note:** The extra screws (both slotted and torx) are included in the repair kits to replace any that may be damaged.



VFF30

Fuel Shut-Off / Lockoffs



## ACCESSORIES

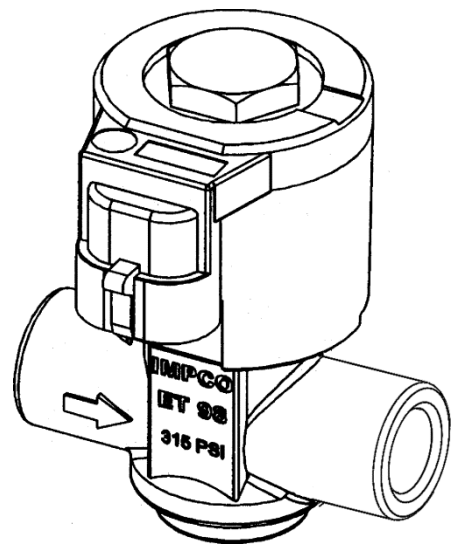
### PRIMER

PART#	DESCRIPTION
<u>AC1-57*</u>	Cover, VFF30 w/Electric Primer

### REPAIR KITS

PART#	DESCRIPTION
RK-VFF30	Repair Kit, Hydrin
RK-VFF30-2	Repair Kit, Silicone
RK-VFF30-3	Repair Kit, Fluorosilicone

ET98



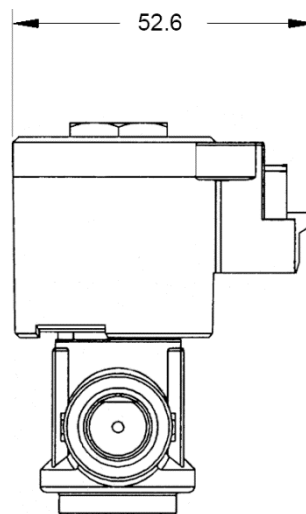
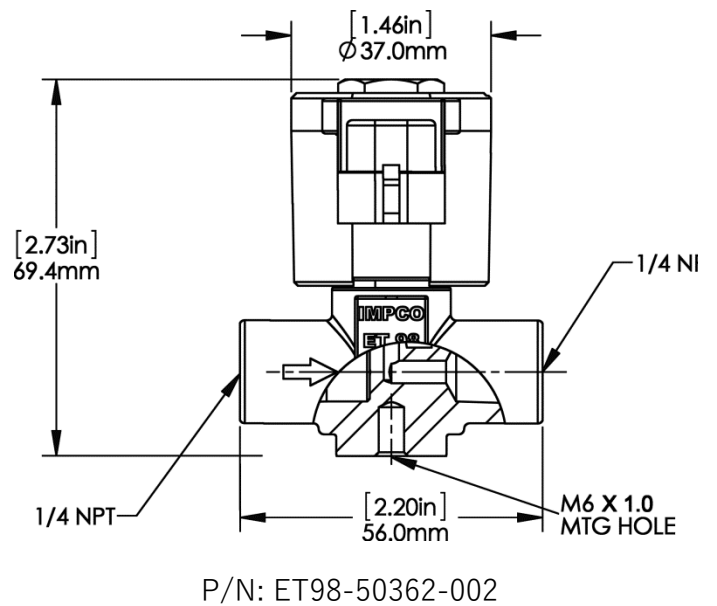
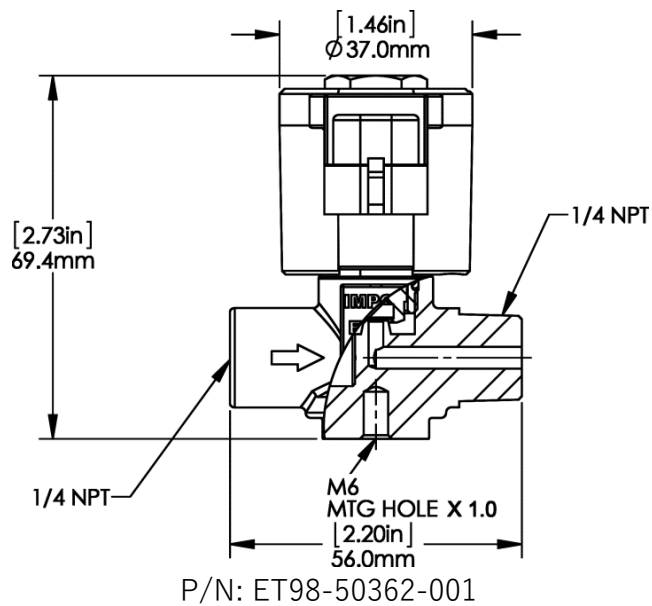
DESCRIPTION

The Model ET98 is an electrically operated safety shutoff valve suitable for high pressure up to 315 psi (21.7 Bar) of LPG Liquid/Vapor or Natural Gas Vapor. It is a normally closed Straight-Through Lockoff, opened with 12V or 24V DC and is available with either a male or female outlet.

SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor or Low Pressure Natural Gas
Inlet Pressure (Maximum) .....	315 psi (21.7 Bar)
Flow Rating .....	1,268 Gal/Hr (24,000 NL/Hr) @ 58 psi (400 kPa) Air
Electrical Requirement .....	12 VDC (15.5 W) or 24 VDC (16 W)
Operating Temperature Range	
12V .....	-40° F to +250° F (-40° C to +121° C)
24V .....	-40° F to +130° F (-40° C to +55° C)
Fuel Filtration Required.....	40 Micron
Mounting Position .....	Vertical Recommended
Certification .....	UL Recognized, Inquire for specific ECE approval
Weight.....	12 oz. (470 grams)

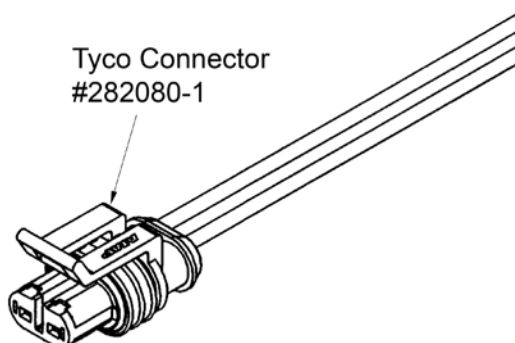
## DIMENSIONS



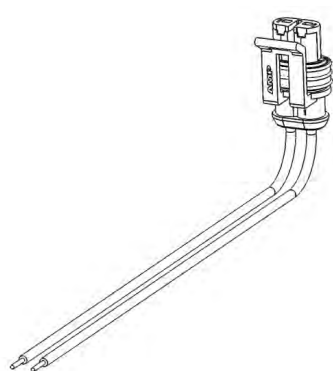
## CONNECTORS

To service the lockoff or its electrical connection, both wire pigtail connector and the lockoff (without the wire pigtail connector) are available separately. Refer to the table below for part information:

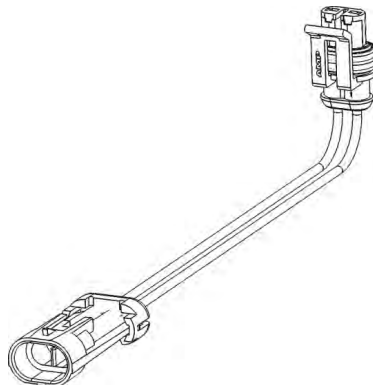
ET98 Lockoff (w/o Pigtail Connector)	ET98 Lockoff (w/Pigtail Connector)	Description	Wire Pigtail Connector	DC Voltage
ET98-52295-001	ET98-50362-001	Female to Male	AW-52815-001	12
ET98-52295-002	ET98-50362-002	Female to Female		12
ET98-52295-002	<u>ET98-30515-003</u>	Female to Female	<u>AW-52815-002</u>	12
ET98-52295-001	ET98-30515-001	Female to Male	AW-52815-003	12
ET98-52295-002	<u>ET98-30515-002</u>	Female to Female		12
ET98-52295-004	N/A	Female to Female	Not Included	24
<u>ET98-52295-005</u>	N/A	Female to Male	Not Included	24
ET98-52295-004	ET98-30515-007	Female to Female	AW-52815-001	24



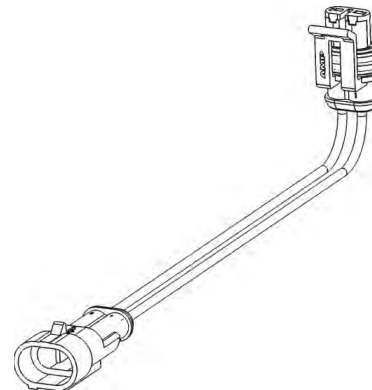
All wire pigtails connect to the solenoid coil of the ET98 using connector Tyco part number 282080-1:



AW-52815-001 has insulated wire leads approximately 6.3" (159mm) long

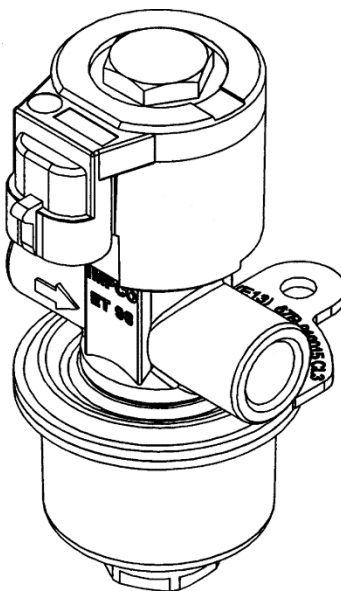


AW-52815-002 has a Tyco connector 282104-1



AW-52815-003 has a Metri-pack connector (Packard type PA6)

## ET98 w/ Filter



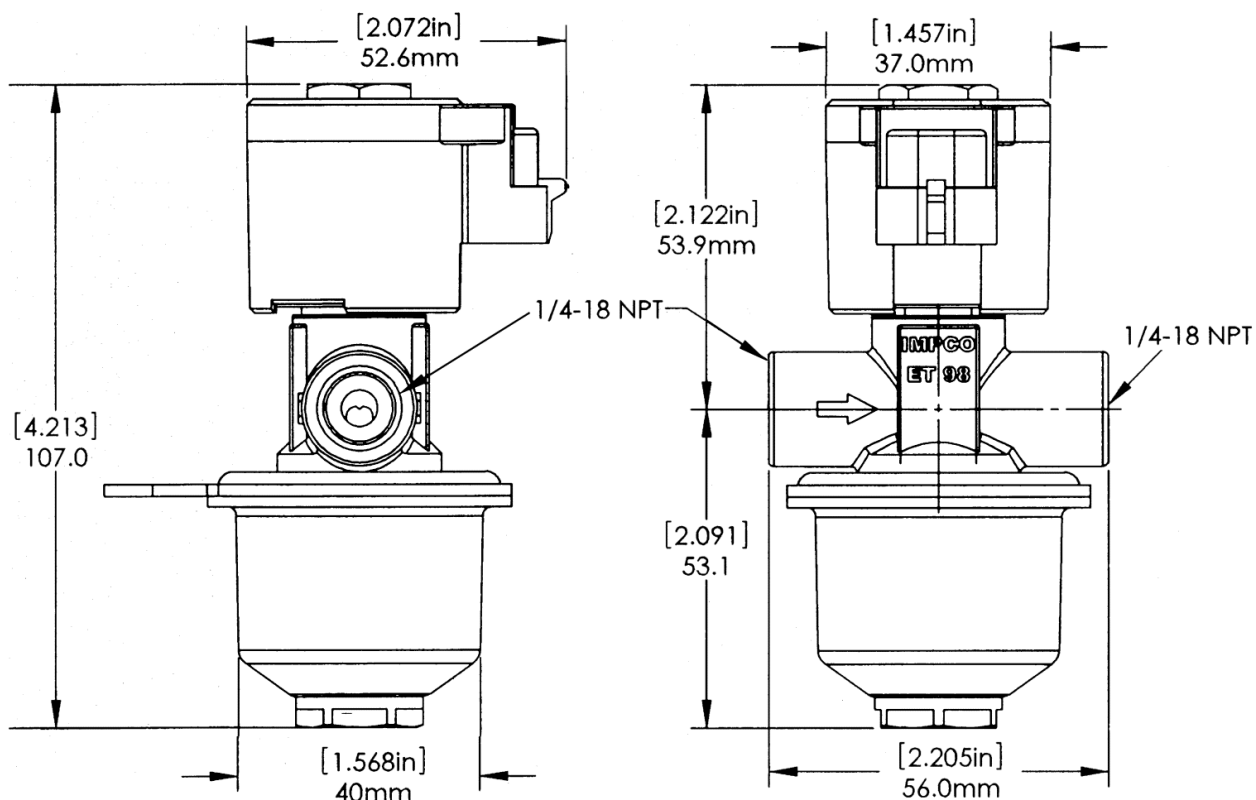
### DESCRIPTION

The Model ET98 with filter is an electrically operated safety shutoff valve suitable for high pressure up to 315 psi (21.7 Bar) of LPG Liquid/Vapor or Natural Gas Vapor. It is a normally closed Straight-Through Lockoff, opened with 12V or 24V DC featuring an integrated filter. The filter model has two female NPT fittings and a mounting kit.

### SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor or Low-Pressure Natural Gas
Inlet Pressure (maximum).....	315 psi (21.72 Bar)
Flow Rating .....	1,268 gal/hr (24,000 NL/hr) @ 58 psi (400 kPa) Air
Electrical Requirement .....	12 VDC (15.5 W) or 24 VDC (16 W)
Operating Temperature Range	
12 V .....	-40° F to +250° F (-40° C to +121° C)
24 V .....	-40° F to +130° F (-40° C to +55° C)
Fuel Filtration Provided .....	40 Micron
Mounting Position .....	Vertical recommended
Certification .....	UL Recognized, Inquire for specific ECE application

## DIMENSIONS



P/N: ET98-51315-001

## REPAIR KIT

PART#	DESCRIPTION
	Repair Kit, ET-98
RK-ET98	w/Filter

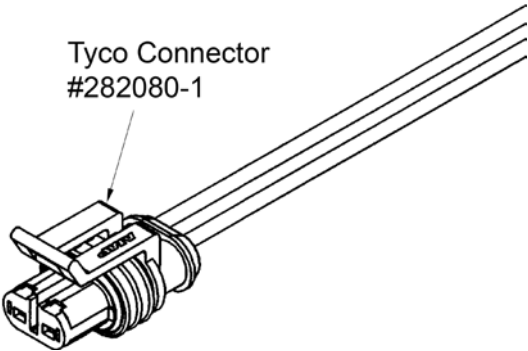
**Note:** The RK-ET98 repair kit cannot be used to repair an ET98 not originally equipped with an integrated fuel filter.



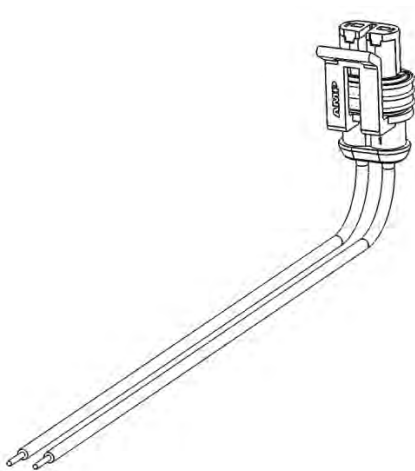
CONNECTORS

To service the lockoff or its electrical connection, both wire pigtail connector and the lockoff (without the wire pigtail connector) are available separately. Refer to the table below for part information:

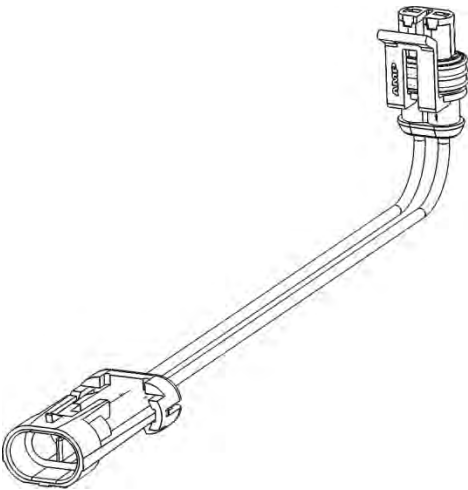
ET98 Lockoff (w/o Pigtail Connector)	ET98 Lockoff (w/Pigtail Connector)	Description	Wire Pigtail Connector	DC Voltage
ET98-52296-001	<u>ET98-50362-003</u>	Female to Female	AW-52815-001	12
ET98-52296-001	ET98-51315-001	Female to Female	AW-52815-003	12
ET98-52296-001	<u>ET98-30515-006</u>	Female to Female	<u>AW-52815-002</u>	12
ET98-52296-002	<u>ET98-51315-002</u>	Female to Female	AW-52815-003	24



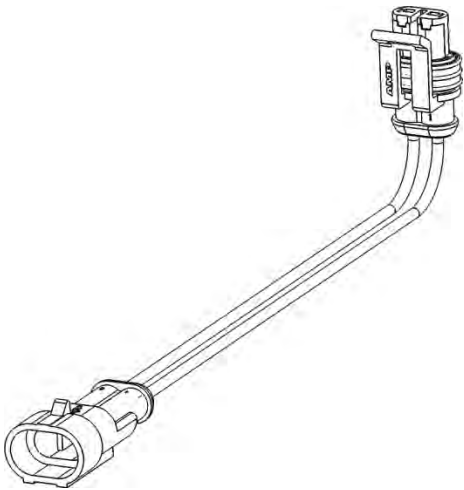
All wire pigtails connect to the solenoid coil of the ET98 using connector Tyco part number 282080-1:



AW-52815-001 has insulated wire leads approximately 6.3" (159mm) long

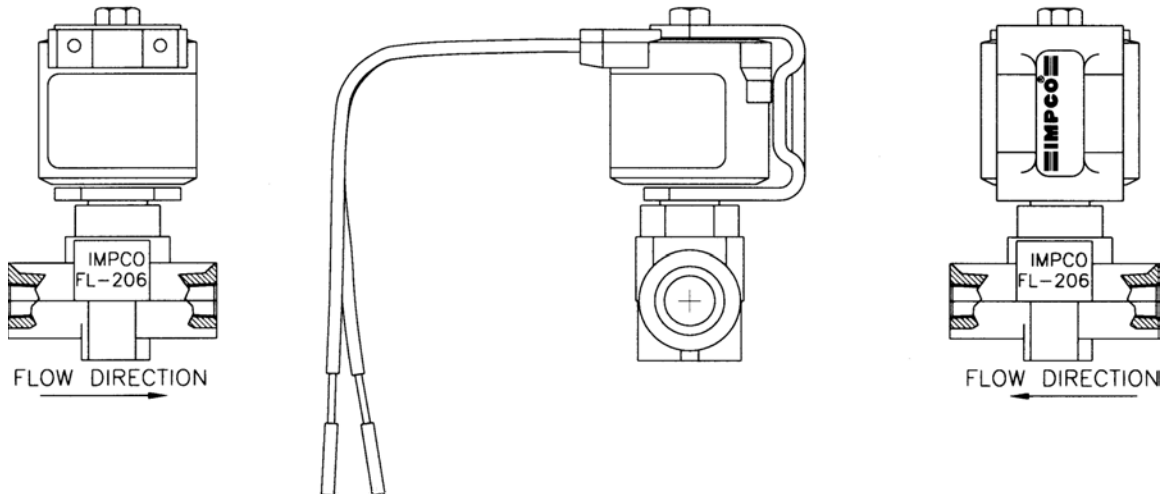


AW-52815-002 has a Tyco connector 282104-1



AW-52815-003 has a Metri-pack connector (Packard type PA6)

## FL-206 (obsolete)



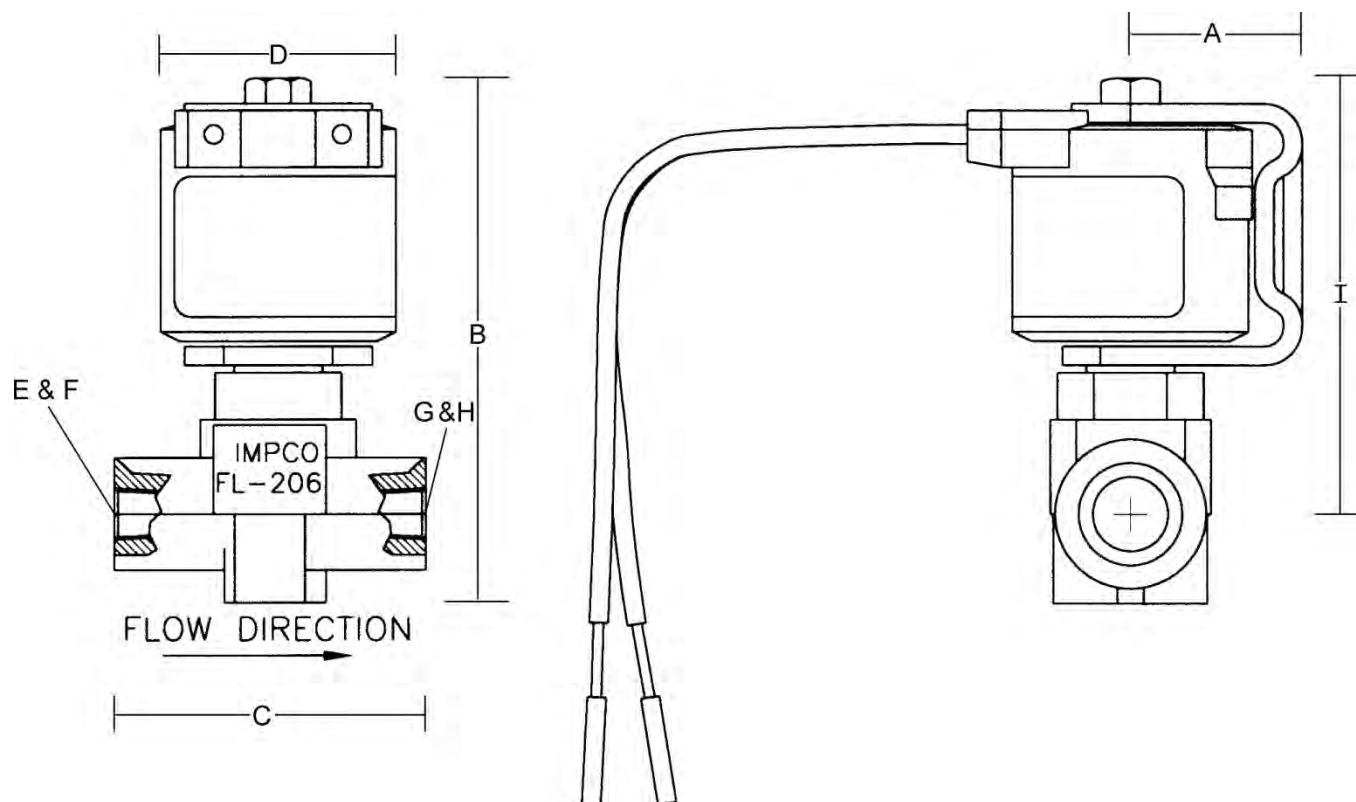
### DESCRIPTION

The FL-206 model is a normally closed 12 VDC electric solenoid shut off valve, suitable for use with gasoline applications.

### SPECIFICATIONS

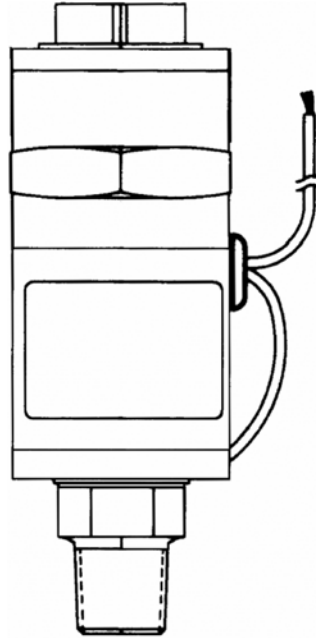
Fuel Type .....	Gasoline
Inlet Pressure (Maximum) .....	30 psi (2.1 Bar)
Flow Rating .....	24.6 gal/hr @ 2.84 psi (100 NL/hr @ 19.6 kPa)
Electrical Requirement .....	12 VDC (8 W)
Operating Temperature Range .....	-40°F to 158°F (-40°C to 70°C)
Fuel Filtration Required .....	40 Micron
Mounting Position .....	Any
Certification .....	UL (MH19296)

## DIMENSIONS



	A	B	C	D	E	F	G	H	I	K
	CENTER OF SOLENOID TO WIDEST POINT	OVERALL HEIGHT	VALVE BODY LENGTH	SOLENOID DIA.	INLET THREAD TYPE	INLET THREAD SIZE (NPT)	OUTLET THREAD TYPE	OUTLET THREAD SIZE (NPT)	CTR. OF VALVE TO TOP OF SOLENOID	WEIGHT
MODEL										
FL-206	23 mm (0.91")	71 mm (2.80")	42 mm (2.01")	32 mm (1.26")	FEMALE	1/8"	FEMALE	1/8"	59 mm (2.32")	266 G (9.4 OZ)

## FL-218-12V (obsolete)



### DESCRIPTION

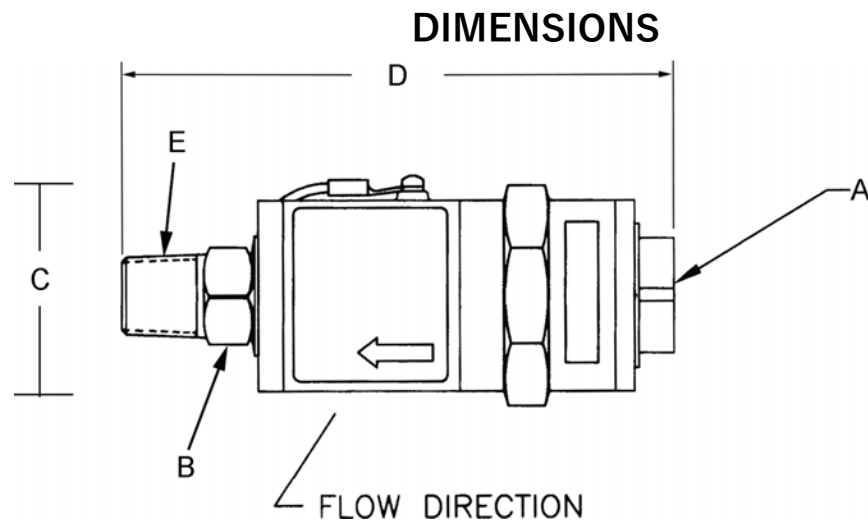
The FL-218 model heavy-duty electric shutoff solenoid valve, equipped with an integral filter for engines up to 200 cubic inches (3.28L). The solenoid is 12 VDC operated and is normally closed. The internal replaceable filter allows for in-line filtration suitable for use with LPG or low-pressure side of Natural Gas applications.

### SPECIFICATIONS

Fuel Type .....	LPG Liquid/Vapor or Low-Pressure Natural Gas
Inlet Pressure (Maximum) .....	250 psi (17.2 Bar)
Operating Temperature Range.....	-40°F to +250°F (-40°C to 121°C)
Flow Rating.....	4.0 gal/hr (15.1 NL/hr) @ 2.84 psi (19.6 kPa)
Electrical Requirement .....	12 VDC (12 W)
Fuel Filtration Required.....	40 Micron
Mounting Position .....	Any
Certification .....	UL (AU1502)

## FL-218-12V (obsolete)

### Fuel Shut-Off / Lockoffs



	A	B	C	D	E	G
	OUTLET					
MODEL	INLET THREAD SIZE (NPT)	HEX NUT SIZE	OVERALL WIDTH	OVERALL LENGTH	THREAD SIZE (NPT)	WEIGHT
FL-218-12V	1/4" (FEMALE)	9/16"	32 mm (1.25")	91.2mm (3.59")	1/4" (MALE)	510 G (18 oz. )

#### KIT-FILTER ELEMENT & GASKET

ITEM #	PART #	DESCRIPTION
1	FL-4748	Kit, Element & Gasket

## FL-418-12V (obsolete)



### DESCRIPTION

The FL-418-12V model heavy duty electric shutoff solenoid valve with an integral filter. The solenoid is 12 volt operated, normally closed and is suitable for LPG and low pressure side Natural Gas applications. The internal replaceable filter allows for in-line filtration and can be used in conjunction with any IMPCO fuel management system.

### SPECIFICATIONS

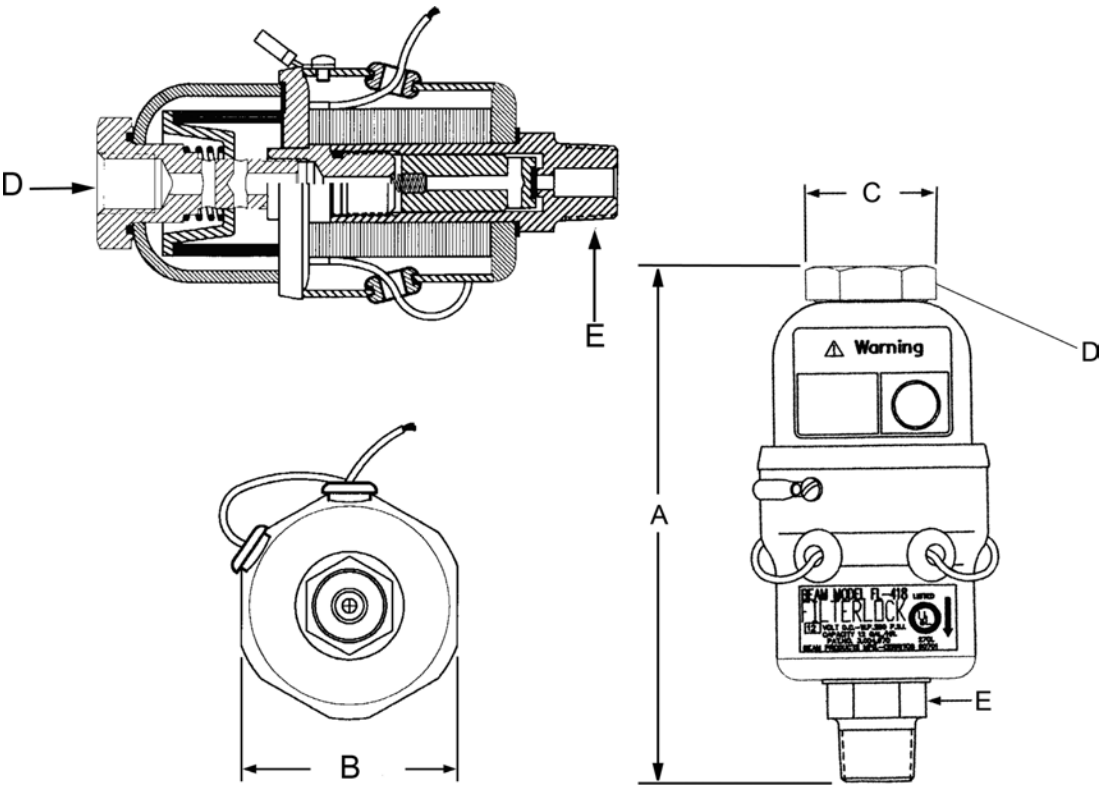
Fuel Type .....	LPG Liquid/Vapor or Low Pressure Natural Gas
Inlet Pressure (Maximum) .....	250 psi (17.24 Bar)
Operating Temperature Range.....	-40°F to +250°F (-40°C to +121°C)
Electrical Requirement .....	12 VDC
Filter Rating .....	40 Micron (1.6 mil)
Mounting Position .....	Vertical or horizontal
Certification .....	UL (AU1502)

FL-418-12V (obsolete)

Fuel Shut-Off / Lockoffs



DIMENSIONS

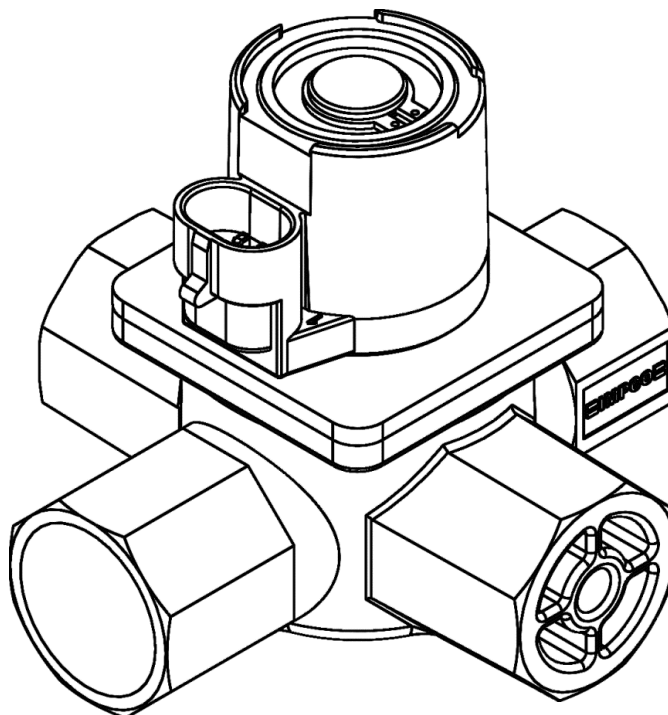


	A	B	C	D	E	G
	OVERALL HEIGHT	OVERALL WIDTH	NUT WIDTH	INLET THREAD TYPE	OUTLET THREAD TYPE	WEIGHT
MODEL						
FL-418-12V	116 mm (4.56")	48 mm (1.88")	25 mm (1.0")	1/4"(FEMALE)	1/4" NPT (MALE)	340 g (12 oz)

FILTERS

PART #	DESCRIPTION
FL-4748	Kit Elem & Gasket

## FL-50046 / FL-52826 (obsolete)



### DESCRIPTION

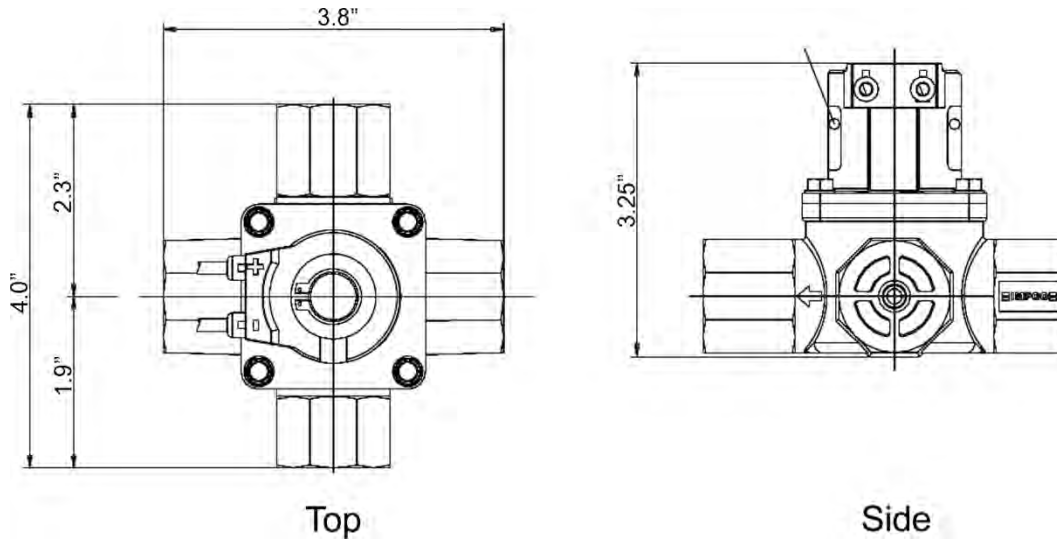
The FL-50046 / FL-52826 model is a low pressure normally closed 12 VDC safety shut-off valve suitable for use with LPG Vapor or Natural Gas Vapor. The valve is available in six different inlet/outlet configurations and provides two points for hard mounting. The coil assembly is hermetically sealed for excellent moisture resistance.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Low Pressure Natural Gas
Inlet Pressure (maximum).....	13.85" w.c. (3.45 kPa)
Flow Rate .....	350 CFH (9,911 L/H) @ 3.45 kPa (Air)
Electrical Requirement	
Nominal .....	15.5 Watts @ 12 VDC (1.3 Amps)
Continuous Use (>20 mins).....	12 Watts @ 12 VDC (1.0 Amp)
Operating Temperature Range.....	-40° F to +221° F (-40° C to 105° C)
Mounting Position .....	Vertical (Coil Up) ±10°
Certification .....	UL Recognized, Inquire for specific ECE approval



## DIMENSIONS



P/N: FL-50046 XXX (Original version)

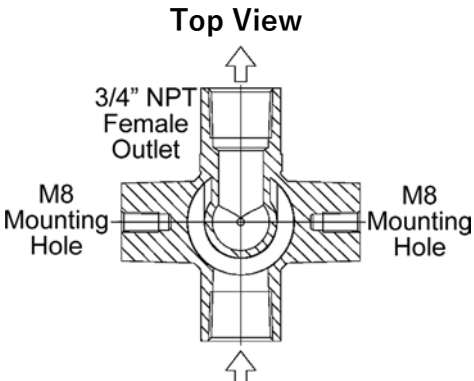
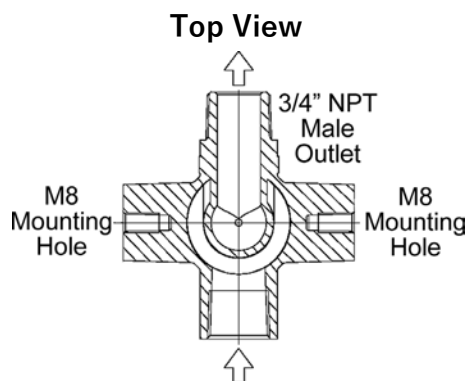
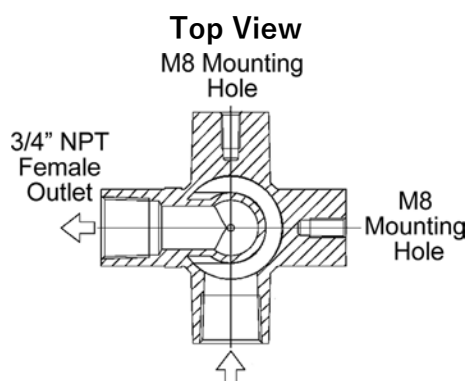
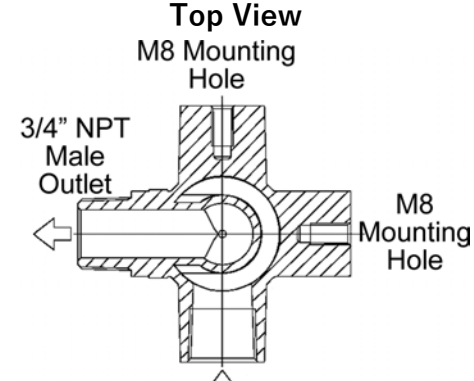
## PART NUMBERS

To better service the new lockoff or its electrical connection, both the wire pigtail connector and the lockoff (without the wire pigtail connector) are available separately. Refer to the table below for part information:

Original FL-50046 Lockoff*	New Lockoff (solenoid w/female connector)**	Description	Wire Pigtail Connector
FL-50046-001	FL-52826-001	Lockoff, 180 Deg Flow, Female In, Female Out	AW-52815-001
FL-50046-002	FL-52826-002	Lockoff, 180 Deg Flow, Female In, Male Out	
FL-50046-003	FL-52826-003	Lockoff, 90 Deg Flow, Female In, Female Out, Left Exit	
FL-50046-004	FL-52826-004	Lockoff, 90 Deg Flow Female In, Female Out, Right Exit	
FL-50046-005	FL-52826-005	Lockoff, 90 Deg Flow, Female In, Female Out, Right Exit	
FL-50046-006	FL-52826-006	Lockoff, 90 Deg Flow, Female In, Male Out, Right Exit	
FL-50046-007	FL-52826-007	Lockoff, 180 Deg Flow, Female In, Male Out, No Mtg Hole	
FL-50046-008	FL-52826-008	Lockoff, 180 Deg Flow, Female In, Female Out, No Mtg Hole	

\*Includes Wire Pigtail

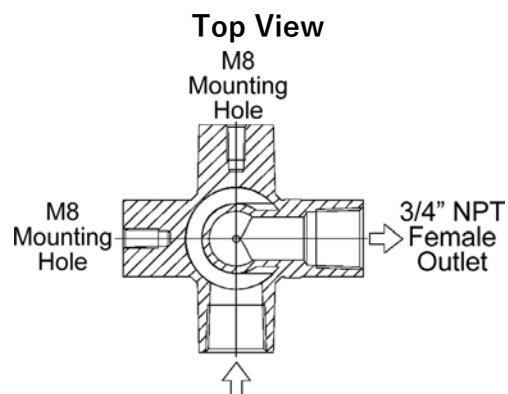
\*\*Wire Pigtail not included

Clock Position	Fitting Type	Description	Top View
3	M8 Mounting Hole	Mount	
6	3/4" NPT Female	Inlet	
9	M8 Mounting Hole	Mount	
12	3/4" NPT Female	Outlet	
<b>Description:</b> Straight (180° ) Passage (female outlet) <b>P/N:</b> FL-50046 / FL-52826-001 or -008 (w/out mtg hole)			
Clock Position	Fitting Type	Description	Top View
3	M8 Mounting Hole	Mount	
6	3/4" NPT Female	Inlet	
9	M8 Mounting Hole	Mount	
12	3/4" NPT Male	Outlet	
<b>Description:</b> Straight (180° ) Passage (male outlet) <b>P/N:</b> FL-50046 / FL-52826-002 or -007 (w/out mtg hole)			
Clock Position	Fitting Type	Description	Top View
3	M8 Mounting Hole	Mount	
6	3/4" NPT Female	Inlet	
9	3/4" NPT Female	Outlet	
12	M8 Mounting Hole	Mount	
<b>Description:</b> 90° Left Exit (female outlet) <b>P/N:</b> FL-50046/ FL-52826-003			
Clock Position	Fitting Type	Description	Top View
3	M8 Mounting Hole	Mount	
6	3/4" NPT Female	Inlet	
9	3/4" NPT Male	Outlet	
12	M8 Mounting Hole	Mount	
<b>Description:</b> 90° Left Exit (male outlet) <b>P/N:</b> FL-50046 / FL-52826-004			

Clock Position	Fitting Type	Description
3	3/4" NPT Female	Outlet
6	3/4" NPT Female	Inlet
9	M8 Mounting Hole	Mount
12	M8 Mounting Hole	Mount

**Description:** 90° Right Exit (Female outlet)

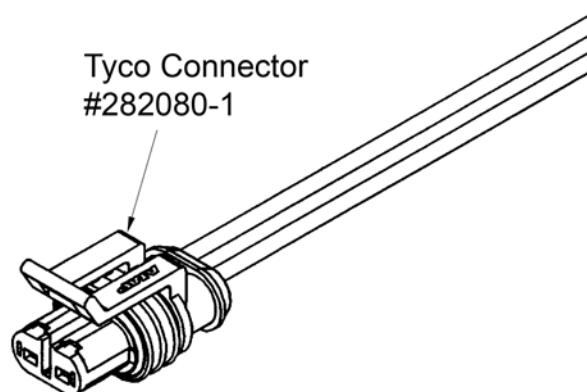
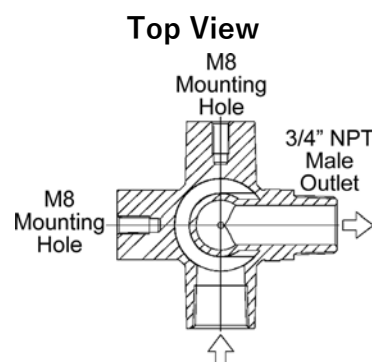
**P/N:** FL-50046 / FL-52826-005



Clock Position	Fitting Type	Description
3	3/4" NPT Male	Outlet
6	3/4" NPT Female	Inlet
9	M8 Mounting Hole	Mount
12	M8 Mounting Hole	Mount

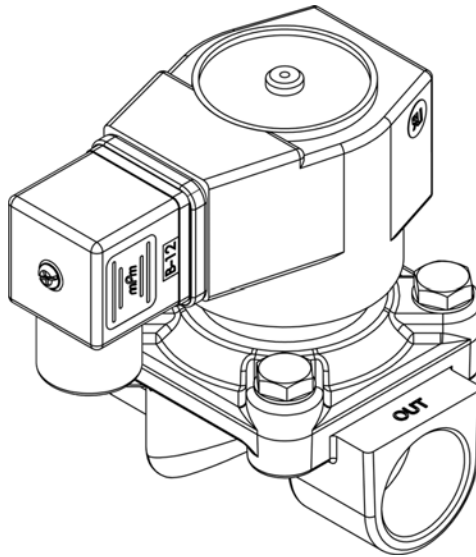
**Description:** 90° Right Exit (Male outlet)

**P/N:** FL-50046 / FL-52826-006



The wire pigtail connector (AW-52815-001) has insulated wire leads approximately 6.3" (159mm) long. The connector is Tyco part number 282080-1.

## FL-51767 (obsolete)



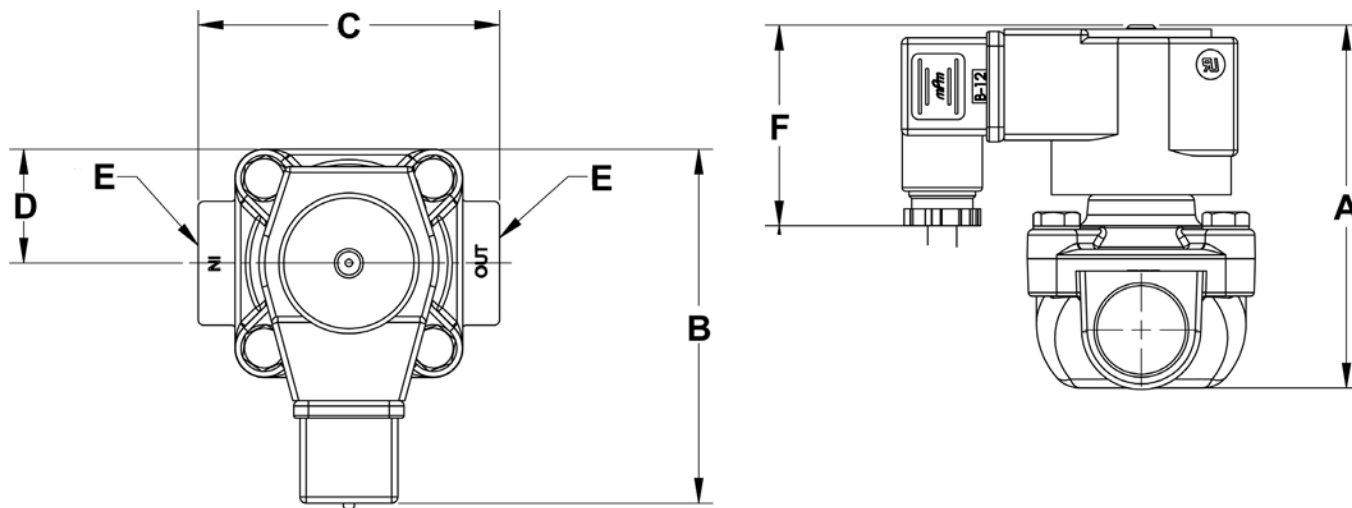
### DESCRIPTION

The Model FL-51767 is a large capacity, low pressure, 12 VDC normally closed, electric shut off.

### SPECIFICATIONS

Fuel Type .....	LPG Vapor or Low Pressure Natural Gas
Inlet Pressure (maximum).....	1.5 psi (10.3 kPa)
Capacity.....	N/A
Electrical Requirement .....	12 VDC (1.2 A)
Operating Temperature Range.....	32°F to +122°F (-0°C to +50°C)
Fuel Filtration Required.....	40 Micron
Mounting Position .....	Vertical (Coil Up) Recommended
Certification .....	UL 429, MH9011

## DIMENSIONS



	A	B	C	D	E	F
	HEIGHT	DEPTH	OVERALL WIDTH	SIDE TO CTR OF OUTLET	INLET/ OUTLET (NPT)	CONNECTOR HEIGHT
MODEL						
FL-51767-001	99.0mm (3.89")	96.0mm (3.78")	82.0mm (3.23")	31.0mm (1.22")	3/4"	55mm (2.17")



# Adapters

A2 Model (Air Horns).....241

A3 Model (Mixers) .....242

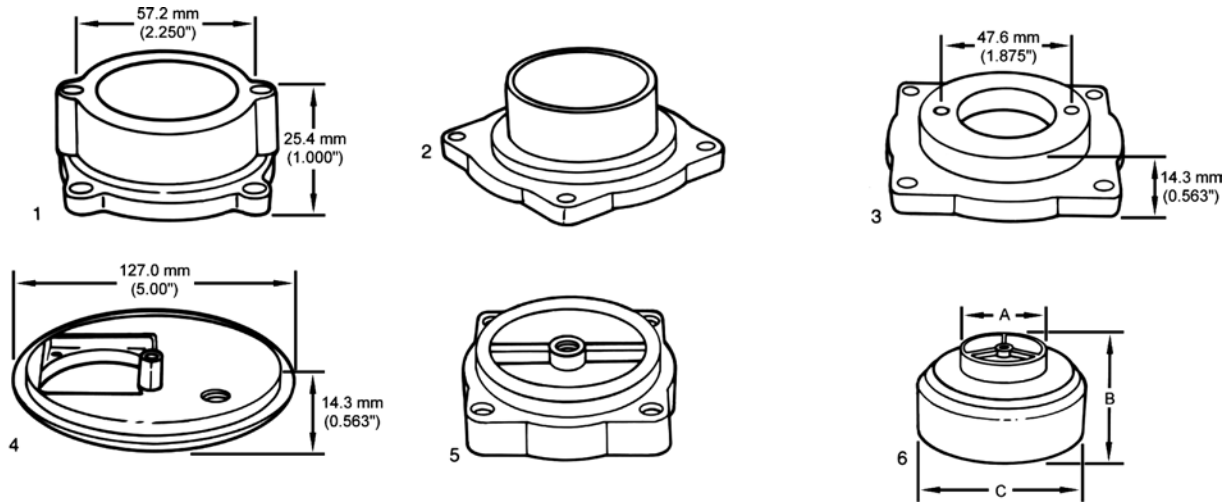
S3 Model (Spacers) .....244

A1-61 (5-1/8" Air Horn) .....245

UNIDAPT Adapter System.....246

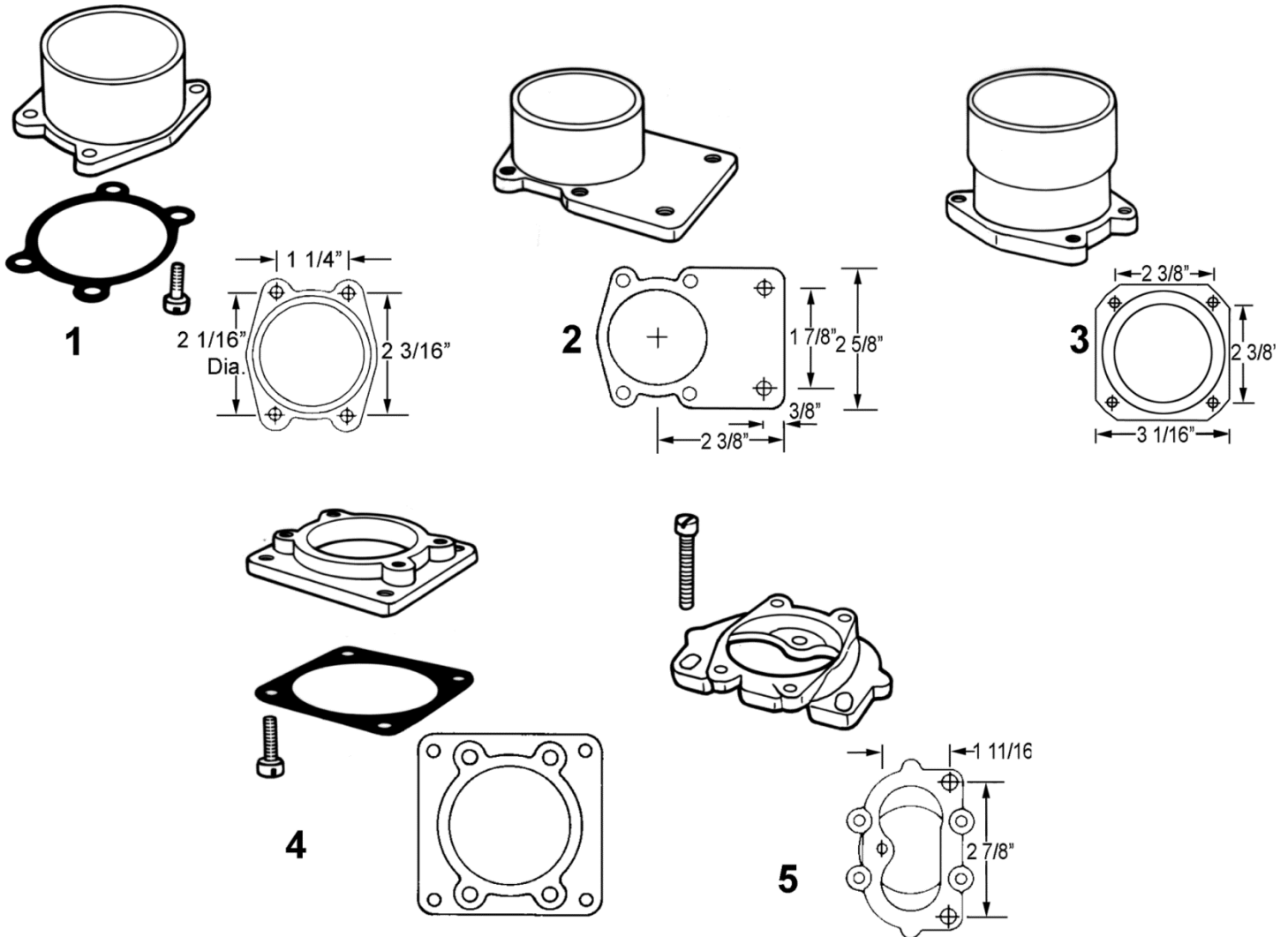
Carter Thermo Quad.....248

### A2 Model (Air Horns)



ITEM#	PART#	DESCRIPTION			
1	A2-35	For Model CA55 mixer, to 1974 Toyota lift truck Air Horn			
	<u>A2-36*</u>	For 1.5000" I.D. hose			
	<u>A2-37*</u>	For 1.625" I.D. hose			
	A2-38	For 1.875" I.D. hose			
2	A2-39	For 2.063" I.D. hose			
	A2-41	For 2.313" I.D. hose			
3	<u>A2-61*</u>	For 63mm I.D. hose, tapped to 8mm			
4	<u>A2-44*</u>	Adapter, Air Cleaner for CA55-500			
5	A2-60	For Datsun J-15 engine, 57.2m (2.250") dia., w/ 1/4" 20 ctr st	<b>A</b>	<b>B</b>	<b>C</b>
	A2-7	For model 125 mixer	66.7mm (2.625")	44.5mm (1.750")	130.0mm (5.125")
	A2-8	For model 125 mixer	58.7mm (2.313")	44.5mm (1.750")	130.0mm (5.125")
	<u>A2-9*</u>	For model 125 mixer	56.4mm (2.219")	44.5mm (1.750")	130.0mm (5.125")
6	<u>A2-33*</u>	For model 125 mixer	80.0 mm (3.150")	44.5mm (1.750")	130.0mm (5.125")
	A2-34	For model 125 mixer	54.0mm (2.126")	44.5mm (1.750")	130.0mm (5.125")
	A2-35	For model 125 mixer	70.0mm (2.765")	44.5mm (1.750")	130.0mm (5.125")

### A3 Model (Mixers)

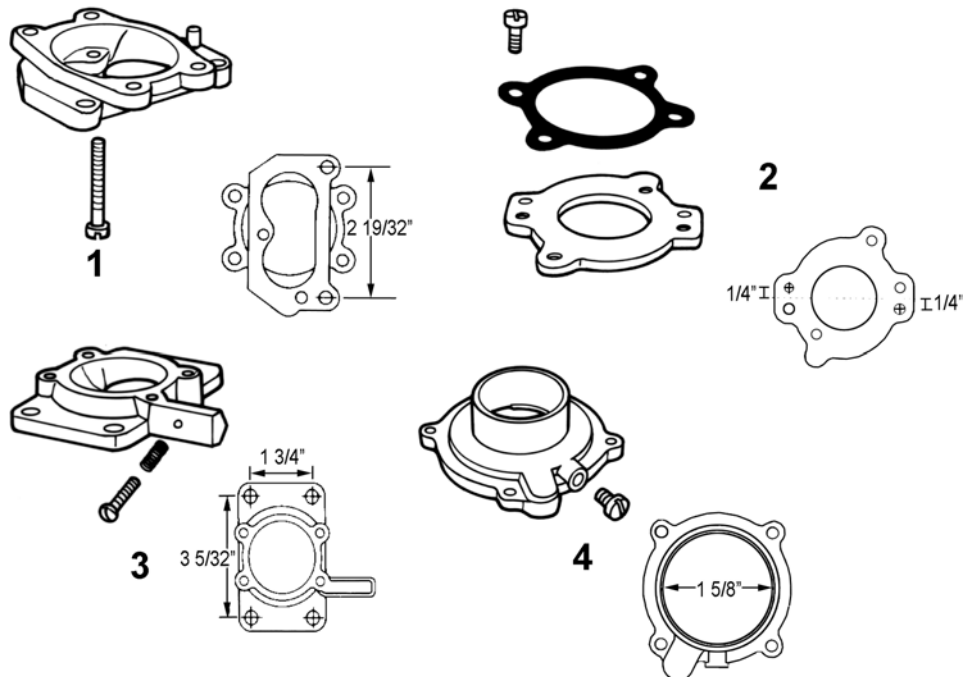


ITEM#	PART#	DESCRIPTION
1	<u>AA3-29-1*</u>	Adapter Assy kit, 100M & 125M to 2 1/16" hose, w/ A3-29-1, G1-11, S1-19 (4)
	<u>AA3-29-2*</u>	Adapter, Assy kit, 100M & 125M to 2 1/16" hose, tapped for 12" x 24", w/A3-29-2, S1-19 (4), G1-11
2	<u>A3-29-3*</u>	Adapter, 100M & 125M to 2 1/16" hose, w/mounting base
3	<u>A3-28</u>	Adapter, 200 & 225M to 3 1/6" hose
	<u>A3-31*</u>	Adapter, 100M & 125M to 2 1/4" hose
4	<u>AA3-32-1</u>	100 & 125 Mixer to 200 & 225 Throttle Body, w/A3-32-1, G1-11, S1-19 (4)
	<u>AA3-32-2*</u>	100 & 125 Throttle Body to 200 & 225 Mixer, w/A3-32-2, G1-11, S1-19 (4)
5	<u>AA3-49*</u>	Adapt. Assy kit, 100 and 125M to Datsun C5 & Nikki p5 throttle body, w/ A3-49, S1-62

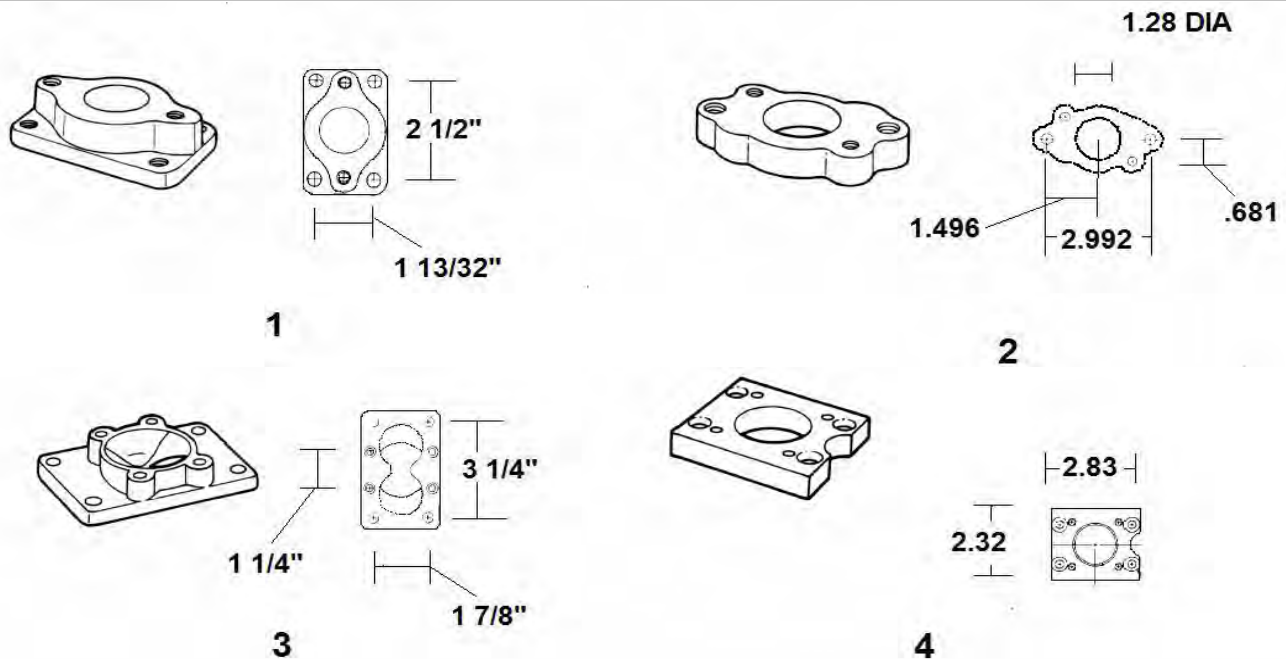


## A3 Model (Mixers)

### Adapters



ITEM#	PART#	DESCRIPTION
1	<u>AA3-50*</u>	Adapt. Ass'y Kit, 100 & 125M to Datsun C3 & P3 throttle body, w/A3-50, S2-23
2	AA3-67	Adapter, Assy kit, 125M Mitsubishi lift truck throttle body, w/A3-67, S1-53, S2-3, G1-126
	<u>A3-82*</u>	Adapter 55M to 1 5/8" hose
3	A3-83	Adapter 55M to 1 7/8" hose
	A3-84	Adapter 55M to 2 1/16" hose



ITEM #	PART #	DESCRIPTION
1	<u>A3-94*</u>	Adapter, 1" SAE flange to Datsun 4-bolt manifold flange
2	A3-113	Adapter, CA55-500 Series to Toyota 4Y intake manifold
3	A3-105	Adapter, Hyster governor, 2B to CA125 & CA100M
4	<u>A3-124-2*</u>	Adapter, 100-125 to Solex lower throttle body

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

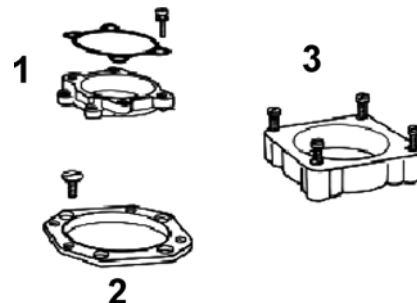
## S3 Model (Spacers)

### Adapters



## S3 Model (Spacers)

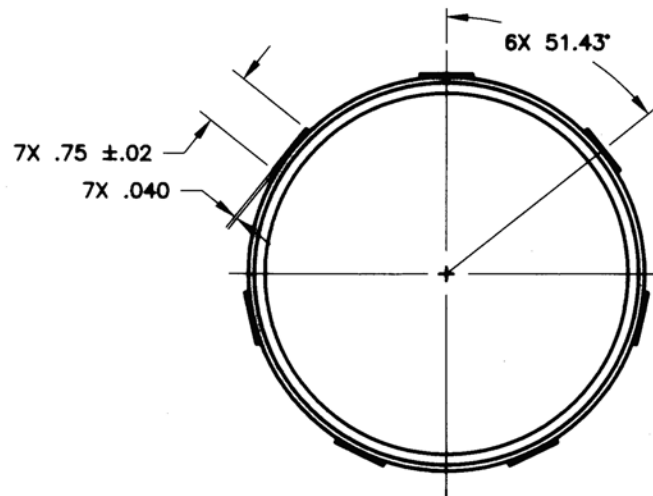
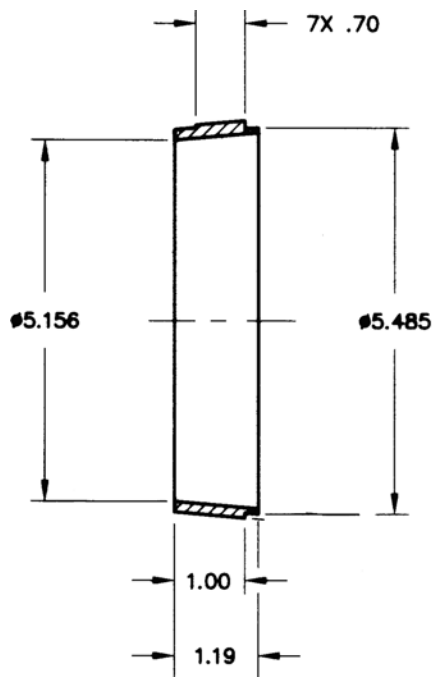
ITEM #	PART #	DESCRIPTION
1	AS3-10	Spacer ass'y, to turn CA125 Air Horn 90°, for S3-10, G1-11, & S1-19 (4)
2	<u>AS3-43*</u>	Spacer ass'y to turn CA125 Air Horn 90°, for S3-43 G1-11, & S1-68 (4)
3	AS3-45	Spacer ass'y, 200 & 225 throttle body to mixer: S3-45, G1-21, S1-93 (4), W1-16 (4)



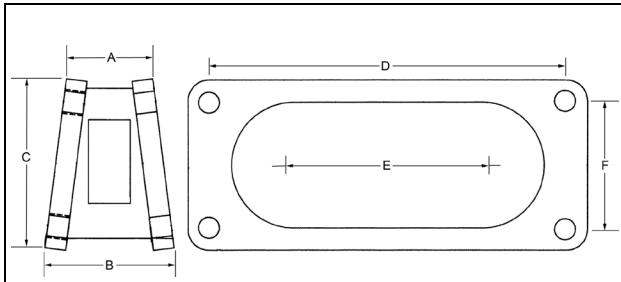
## A1-61 (5-1/8" Air Horn)



### DIMENSIONS



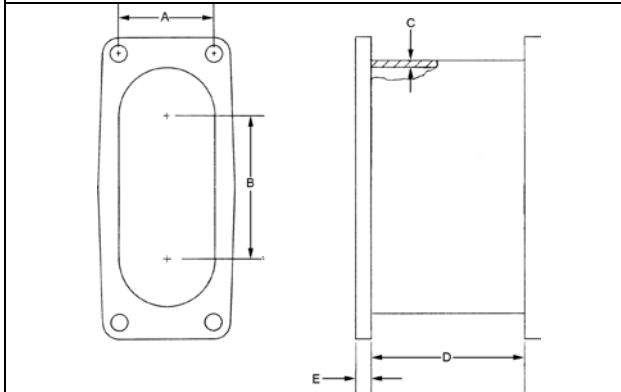
### UNIDAPT Adapter System



	A	B	C	D	E	F
	FLANGE	CTR. TO CTR.	OPENING CTR	CTR TO CTR		
P/N	WIDTH	WIDTH	HEIGHT	BOLTS	TO CTR	SPACING
A1-59	1.0" (25.4mm)	1.5" (38.1mm)	1.79" (45.5mm)	4.27" (108.5mm)	2.25" (57.15mm)	1.5" (38.1mm)

#### AA1-59

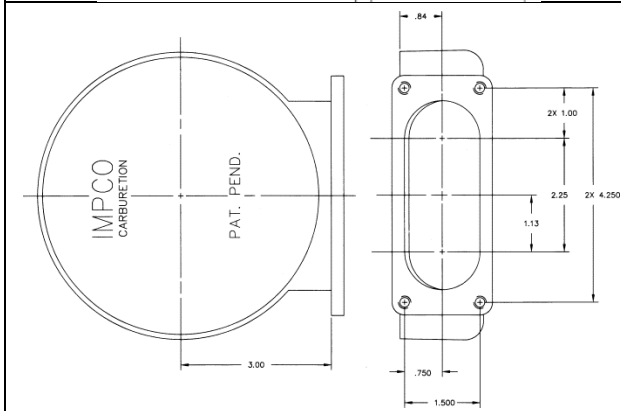
ITEM #	PART #	DESCRIPTION
1	NSS	Adapter, Unidapter Machined
2	NSS	Unidapter Gasket
3	NSS	Screw 1/4-20 Large Head Hex



	A	B	C	D	E
	CTR. TO CTR.	OPENING CTR TO	WALL THICKNESS	WIDTH/ SPACING	FLANGE THICKNESS
P/N	BOLTS	CTR			
AA1-60*	1.5" (38.1mm)	2.25" (57.15mm)	0.10" (2.54mm)	2.44" (62.0mm)	0.25" (6.35mm)

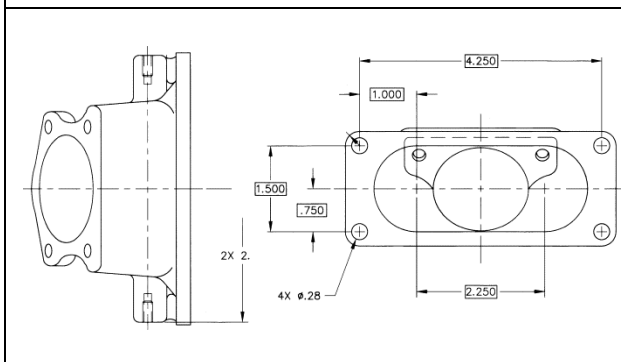
#### AA1-60\*

ITEM #	PART #	DESCRIPTION
1	NSS	Adapter, Unidapter Machined
2	NSS	Unidapter Gasket
3	NSS	Screw 1/4-20 Large Head Hex



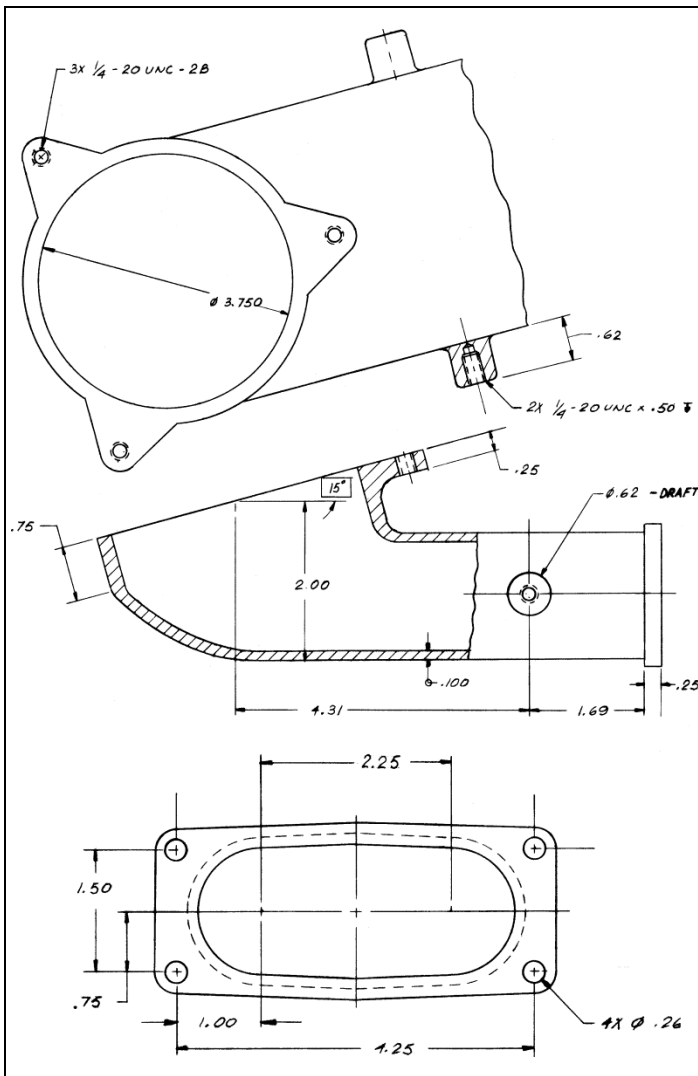
#### AA1-57

ITEM #	PART #	DESCRIPTION
1	A1-57	Adapter, Unidapter Machined
2	NSS	Unidapter Gasket
3	NSS	Screw 1/4-20 Large Head Hex



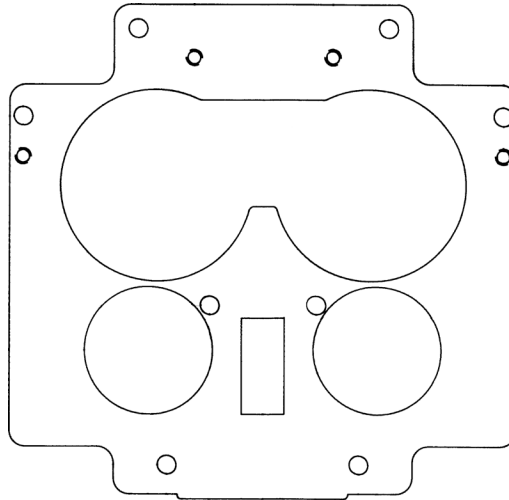
#### A1-53

Adapter, 125 Series Mixers



**A1-63**  
**Adapter, 300A and 175 Series Mixers**

## Carter Thermo Quad (obsolete)



### DIMENSIONS

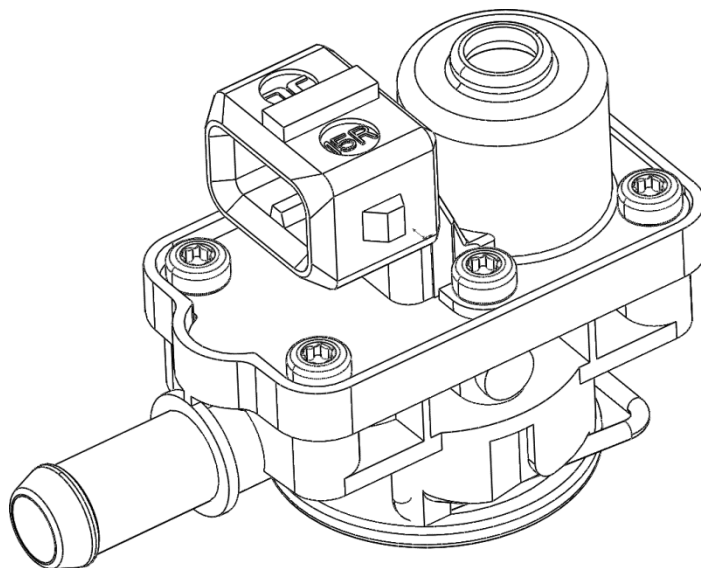
#### AA3-64

ITEM #	PART #	DESCRIPTION	QTY
1	NSS	Adaptor	1
2	NSS	Adapter Cut & Drilled	1
3	G1-74	Gasket, Mixer-Adapter Mod 425	1
4	NSS	Gasket, Adapter A3-37 Mod 425	1
5	S1-19	Screw 12-24X5/8 Sltdfil Stlznc	4
6	S1-35	Screw, 10-32 .38 Pnh Sltd Zn	1
7	S1-51	Screw, 10-32 1.25 Filh Sltd Zn	1
8	NSS	Screw, 10-32 1 Filh Sltd Zn	8
9	NSS	Screw 10-24X1/2 Sltdfil Stlznc	4
10	S2-15	Spring/Idle Stop	1

# Fuel Injectors & Misc. Components

ES2 Fuel Injector.....	250
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Filter Repair Kit .....	274
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## ES2 Fuel Injector



### DESCRIPTION

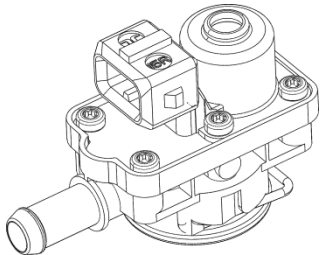
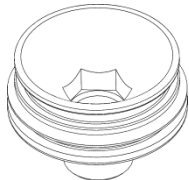
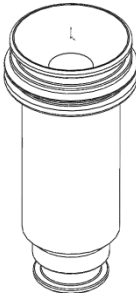
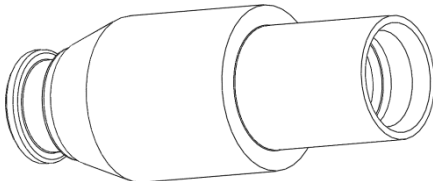
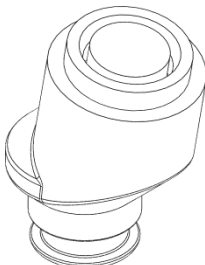
The injector of gaseous fuel uses patented technology to accommodate the most demanding automotive and industrial applications.

### SPECIFICATIONS

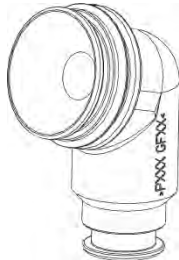
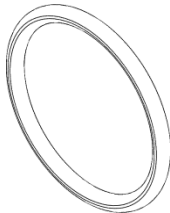
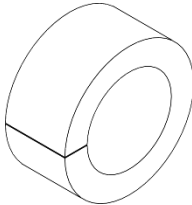
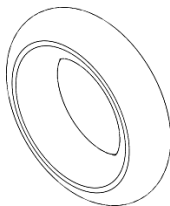
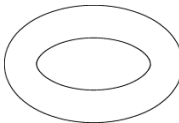
Fuel Type .....	LPG or CNG
Operating Pressure .....	11.6 - 29.0psi (80 – 207 kPa)
Voltage .....	8 – 18 VDC
Coil Resistance .....	15 ohm
Operating Temperature Range..	4°F to +257°F (-20°C to +125°C)
Opening Time .....	3.0 ms
Closing Time.....	1.0 ms
Minimum Injection Pulse .....	4.0 ms
Static Flow Deviation.....	+/- 5.0%
Dynamic Flow Deviation.....	+/- 5.0%
Linearity .....	+/- 2.0%
Driver .....	Saturation
Seat Leakage.....	<15 cc/hr
Max Flow @ 200 kPa (2.25/2.75)	
Air.....	2.2/2.9 gram/sec
LPG .....	2.6/3.4 gram/sec
CNG .....	2.6/3.4 gram/sec
Durability.....	>500 million cycles
Certification .....	ISO 15500, ECE R67-01, ECE R110



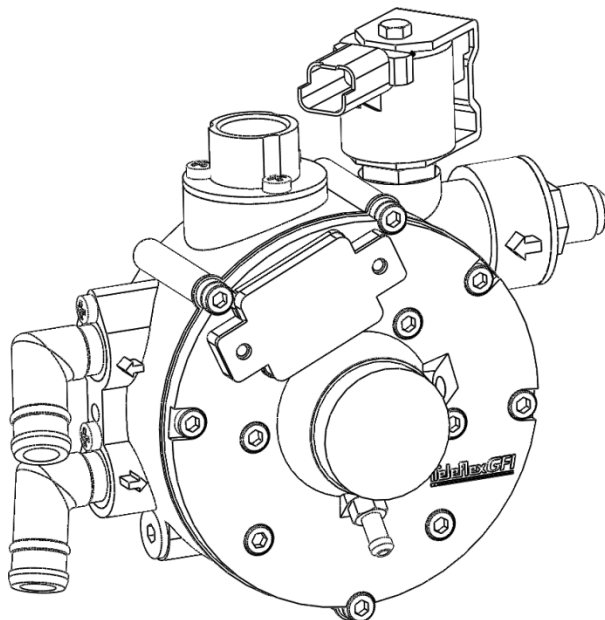
### PART NUMBER & ACCESSORIES

	<p>300000-023 Injector/ (A3-892) Fuel Injector EV1.3 A, CNG, Bosc</p>
	<p><u>300200-004</u> Injector Adapter M10x1</p>
	<p><u>A4-51981</u> Injector Adapter 3.0L</p>
	<p><u>A7-225</u> Gazioc Injector Adapter 2.4L</p>
	<p><u>A7-430</u> Gazioc Injector Adapter 4.3L</p>

### ACCESSORIES

	<p><u>A7-537</u> Injector Adapter 2.4L &amp; 4.3L</p>
	<p>300200-005 Adapter O-Ring</p>
	<p>242100-807 Spacer O-Ring</p>
	<p>270090-109 Inlet O-Ring</p>
	<p>GMN-033 O-ring, Injector</p>

## SGI Injector Regulator



P/N: A7-242 / A7-434

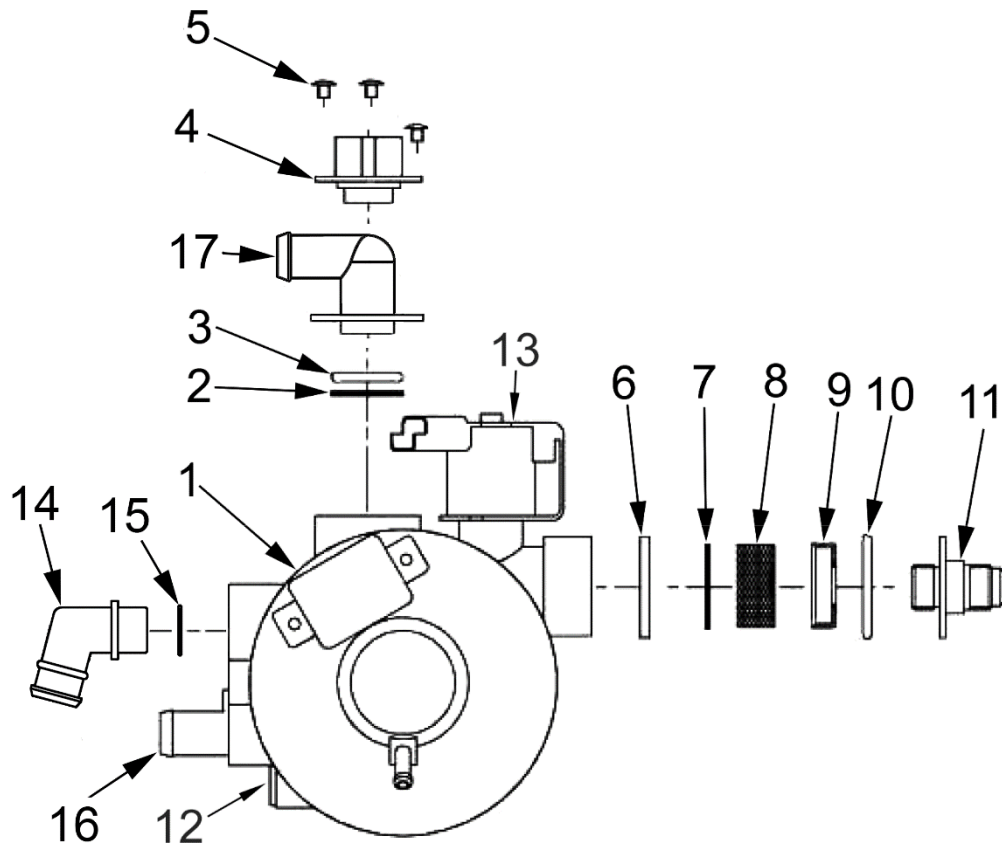
### DESCRIPTION

The single stage pressure regulator uses patented technology to accommodate the most demanding automotive and industrial application for major OEMs worldwide. The regulator transforms LPG from a liquid state into a vapor state at a reference outlet pressure and features an integral liquid LPG shut-off valve, 30-micron filter and pressure relief device. MAP referencing, coolant heating, with an optional LPG absolute pressure reference.

### SPECIFICATIONS

Fuel Type .....	LPG
Input Pressure.....	29 - 290psi (200 – 2,000 kPa)
Outlet Pressure.....	11.6 - 12.3 psi (80-85kPa) Usually MAP referenced
Operating Temperature Range..	4°F to +257°F (-20°C to +125°C)
Voltage .....	12 VDC (11 W)

## COMPONENTS



Item #	Description	Qty	IMPCO Part Number
1	Regulator (Fully Assembled with all parts, includes 4 &16)	1	A7-242
	Regulator (Fully Assembled with all parts, includes 4 &14)		A7-434
	Filter Kit (Includes 2, 6, 7, 8, 9)	1	A7-170
	Outlet Fitting Service Kit (Includes 3 & 4)	1	A7-172
5	Screw Kit (Includes 3 screws)	1	A7-176
	Inlet Fitting w/O-Ring (Includes 10 & 11)	1	A7-171
12	Drain Plug & O-ring Kit (Includes 12 & O-ring)	1	NSS
13	Lock-Off Assembly	1	A7-175
14	Coolant Hose Fitting (105 Degree)	1 or 2	GFA221019A0
15	O-ring, NBR (fits both straight and 105 degree fittings)	2	GFA003050A0
16	Coolant Hose Fitting (Straight)	1 or 2	NSS
17	Fitting, 90 Degree 16mm	1	NSS
18	Regulator Repair Kit (not shown)	1	A7-182

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## Repair Kits

See [www.impcotechnologies.com/repair-kits](http://www.impcotechnologies.com/repair-kits) for most up to date listing of repair kits.

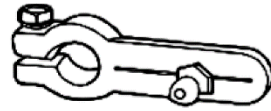
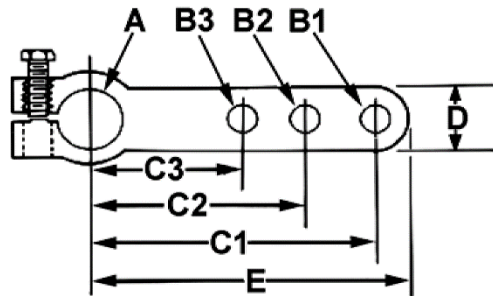
RK Part #	Description
A7-182	Repair Kit, Regulator (Fuel Injection)
<u>039-99*</u>	KN Regulator Repair Service Instructions
<u>074-99*</u>	Repair Kit, Model S2
<u>083-99*</u>	Repair Kit, Model 083
<u>1459717*</u>	Repair Kit, Model Cobra, Instructions (OEM) (RK-C-717)
<u>1501-RK*</u>	1501-L Repair Kit Instructions
<u>1-7011*</u>	Repair Kit, C250A-2, 4, H-4
<u>1-7012*</u>	Repair Kit, C250A,3,9,H
<u>50ERK*</u>	Kit, Repair Model 50
<u>52-RBK*</u>	Kit, Repair Model 52
AF1-10	Repair Kit, VFF30 (Gasket and Filter Only)
AF1-10-001	
<u>FCV-50757*</u>	Fuel Control Valve Upgrade
<u>SA2330-2*</u>	Repair Kit, Algas 60 Diaphragm Service Assy
<u>SA2553-2*</u>	Repair Kit, Algas 80 Diaphragm Service Assy
R11-27	Repair Kit, Model 11A17-001, Instructions
RK300MA-1/20	Model 300 Rebuild Instructions
RK300MA-1/20-2	
RK300MA-50/70-2	
RK300MI-1/20	
<u>RK300MI-1/20-2*</u>	
RK300MI-50/70-2	
RK-30796-001	RK-30796-001 Repair Kit
RK-30796-002	Export Fuel Service Mixer Kit
RK-CA55	Model 55 Repair Kit Instructions
RK-CA55-2	
RK-COBRA	Repair Kit, Model Cobra, Instructions
<u>RK-GMAX-001*</u>	Genius Max Repair Kit Instructions
<u>RK-GMAX-002*</u>	
RKD1-20-3	Repair Kit RKD1-20-3 FOR 600 Diaphragm
RKD1-20-3B	
RK-E	Repair Kit, Model E, Hydrin Diaphragm, Instructions
RK-E-2	Repair Kit, Model E, Silicone Diaphragm, Instructions
<u>RK-E-3*</u>	Repair Kit, Model E, Fluorosilicone Diaphragm, Instructions
RK-EPR-3	EPR Repair Kit
RK-EPR-4	
RK-EPR-5	

## Repair Kits (Continued)

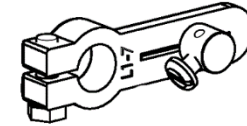
RK Part #	Description
RK-ET98	ET98 w/Filter Installation & Maintenance Instructions
RK-FT150	FT150 Repair Instructions
RK-J	Repair Kit, Model J, Hydrin Diaphragm, Instructions
RK-J-2	Repair Kit, Model J, Silicone Diaphragm, Instructions
<u>RK-J-200*</u>	Repair Kit, Model J, Hydrin Diaphragm, Instructions (OEM)
RK-J-3	Repair Kit, Model J, Fluorosilicone Diaphragm, Instructions
RK-J-632	Repair Kit, Model J, Hydrin Diaphragm, Instructions (OEM)
<u>RK-J-718*</u>	Repair Kit, Model J
RK-J-C	Repair Kit, Model J, Check Valve, Hydrin Diaphragm, Instructions
<u>RK-J-C-3*</u>	Repair Kit, Model J, Check Valve, Fluorosilicone Diaphragm, Instructions
<u>RK-JC-734*</u>	Repair Kit, Model J, Check Valve, Hydrin Diaphragm, Instructions (OEM)
RK-L	Repair Kit, Model L, Hydrin Diaphragm
RK-L-2	Repair Kit, Model L, Silicone Diaphragm
RK-PE	Repair Kit, Model PE, Hydrin Diaphragm, Instructions
RK-PEV	Repair Kit, Model PEV, Hydrin Diaphragm, Instructions
RK-PEV-2	Repair Kit, Model PEV, Silicone Diaphragm, Instructions
<u>RK-PJ*</u>	Repair Kit, PJ
<u>RK-PT*</u>	Wire Harness Repair Kit for Spectrum III
<u>RK-TE*</u>	Repair Kit, Model E Turbo, Silicone Diaphragm, Instructions
RK-TPEV	Repair Kit, Model E Turbo, Fluorosilicone Diaphragm, Instructions
RK-VFF30	Repair Kit, VFF30 (Standard Hydrin Diaphragm)
RK-VFF30-2	Repair Kit, VFF30 (Silicone Diaphragm)
RK-VFF30-3	Repair Kit, VFF30 (Fluorosilicone Diaphragm)
RK-VFF30-958	Repair Kit, VFF30
T60-RBK	Repair Kit, Model T60, Instructions (Major)
T60-RK	Repair Kit, Model T60, Instructions (Minor)
<b>BEARING SEAL REPAIR KITS</b>	
RK Part #	Description
<u>RK-B2-11*</u>	Repair Kit, Bearing Seal 1/4"
RK-B2-12	Repair Kit, Bearing Seal 5/16"
RK-B3-42-1	Repair Kit, Bearing Seal Housing
<u>RK-B3-43*</u>	Repair Kit, Bearing Seal 1/2"
RK-B3-43-1	Repair Kit, Bearing Seal Housi
RK-B3-44	Repair Kit, Bearing Seal 7/16"
RK-B3-479	Repair Kit (includes bearing, seal & sleeve)

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## AL1 Model Levers



(AL1-7-2 W/Stud Shown)



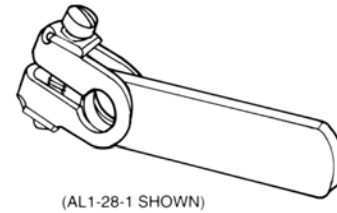
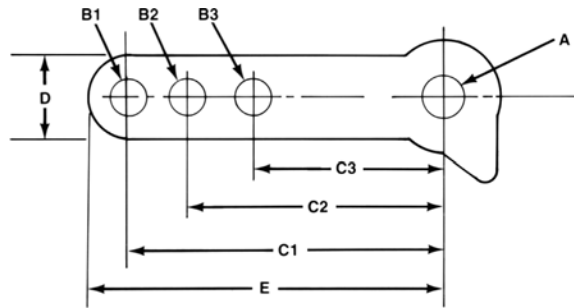
(AL1-7-4 W/Swivel Shown)

LEVER	MT. HOLE I.D. (A)	WIDTH (D)	USABLE LENGTH (E)	B1	C1	B2	C2	B3	C3	NOTES
AL1-7-1	11.1MM (0.438")	14.3mm (0.563")	44.5mm (1.750")							
<u>AL1-7-2*</u>	11.1MM (0.438")	14.3mm (0.563")	44.5mm (1.750")	4.8mm (0.188")	28.6mm (1.125")					
AL1-7-3	11.1MM (0.438")	14.3mm (0.563")	44.5mm (1.750")							Stud S3-31
AL1-7-4	11.1MM (0.438")	14.3mm (0.563")	44.5mm (1.750")	6.0mm (0.234")	28.6mm (1.125")					Stud S3-15
<u>AL1-7-5*</u>	11.1MM (0.438")	14.3mm (0.563")	44.5mm (1.750")	4.8mm (0.188")	28.6mm (1.125")					Stud S3-40
AL1-9-1	12.7mm (0.500")	15.9mm (0.625")	58.7mm (2.313")							
<u>AL1-9-1A*</u>	14.3mm (0.562")	15.9mm (0.625")	58.7mm (2.313")							
AL1-9-2	12.7mm (0.500")	15.9mm (0.625")	58.7mm (2.313")	6.4mm	28.6mm (1.125")					
AL1-12-1	15.9mm (06.25")	15.9mm (0.625")	77.8mm (3.063")							
AL1-12-3	15.9mm (06.25")	15.9mm (0.625")	58.7mm (2.313")							
AL1-34	7.94mm (3.125")									

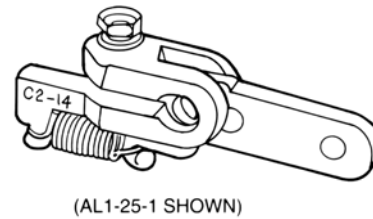
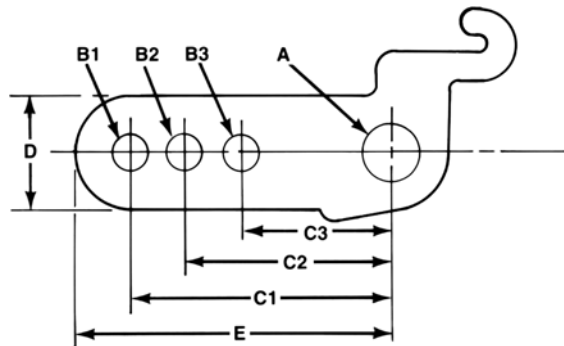
## SWIVELS

PART#	DESCRIPTION
<u>AS3-15*</u>	Swivel, Boden Wire
AS3-40	Swivel, Boden Wire

### Floating Levers



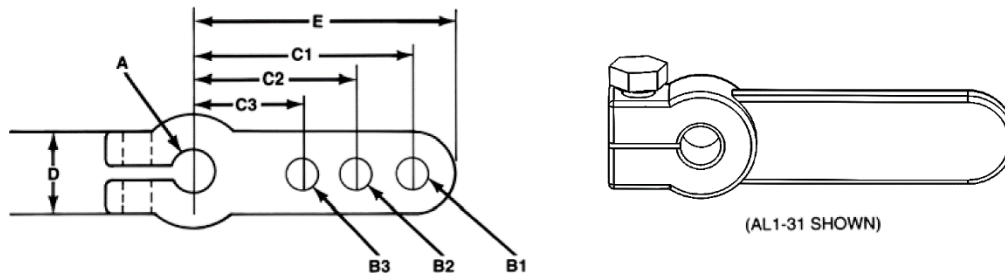
LEVER	MT. HOLE I.D. (A)	WIDTH (D)	USABLE LENGTH (E)	B1	C1	B2	C2	B3	C3	NOTES
AL1-26-1	6.4 mm (0.250")	12.7 mm (0.500")	54.0 mm (2.125")							
<u>AL1-26-2*</u>	6.4 mm (0.250")	12.7 mm (0.500")	54.0 mm (2.125")	6.0 mm (0.234")	28.6mm (1.125")					
AL1-26-401	6.4 mm (0.250")	12.7 mm (0.500")	31.8 mm (2.125")	6.4 mm (0.250")	25.4mm (1.000")					
AL1-27-1	7.9 mm (0.313")	12.7 mm (0.500")	54.0 mm (2.125")							



LEVER	MT. HOLE I.D. (A)	WIDTH (D)	USABLE LENGTH (E)	B1	C1	B2	C2	B3	C3	NOTES
AL1-26-1	6.4 mm (0.250")	12.7 mm (0.500")	54.0 mm (2.125")							
<u>AL1-26-2*</u>	6.4 mm (0.250")	12.7 mm (0.500")	54.0 mm (2.125")	6.0 mm (0.234")	28.6mm (1.125")					
AL1-26-401	6.4 mm (0.250")	12.7 mm (0.500")	31.8 mm (2.125")	6.4 mm (0.250")	25.4mm (1.000")					
AL1-27-1	7.9 mm (0.313")	12.7 mm (0.500")	54.0 mm (2.125")							



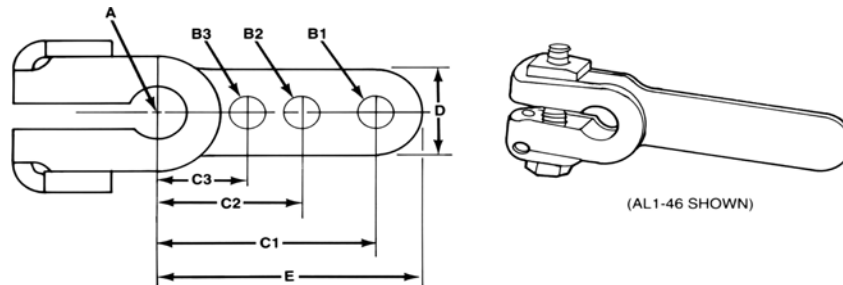
## SHAFT CLAMP LEVERS



LEVER	MT. HOLE I.D. (A)	WIDTH (D)	USABLE LENGTH (E)	B1	C1	B2	C2	B3	C3	NOTES
AL1-31	6.4 mm (0.250")	14.3 mm (0.563")	49.2 mm (1.938")							
<u>AL1-31-124*</u>	6.4 mm (0.250")	14.3 mm (0.563")	30.2 mm (1.188")	2.4 mm (0.094") OFF CTR.	23.8mm (0.938")	6.4 mm (0.250")	17.5MM (0.688")			
AL1-31-138	6.4 mm (0.250")	14.3 mm (0.563")	49.2 mm (1.938")	3.2 mm (0.125")	42.9mm (1.688")	6.0MM (0.234")	23.0MM (0.906")			
<u>AL1-31-191</u>	6.4 mm (0.250")	14.3 mm (0.563")	48.4mm (1.906")							
AL1-33	7.9 mm (0.313")	14.3 mm (0.563")	49.2MM (1.938")							
AL1-33-76*	7.9 mm (0.313")	14.3 mm (0.563")	48.4mm (1.906")	3.2mm (0.125")	44.5mm (1.750")	6.0MM (0.234")	19.1mm (0.750")			
AL1-33-358*	7.9 mm (0.313")	14.3 mm (0.563")	33.3mm (1.313")	6.4mm (0.250")	25.4mm (1.000")					
<u>AL1-7-5*</u>	6.4 mm (0.250")	14.3 mm (0.563")	19.1mm (0.750")	6.4mm (0.250")	12.7mm (0.500")					

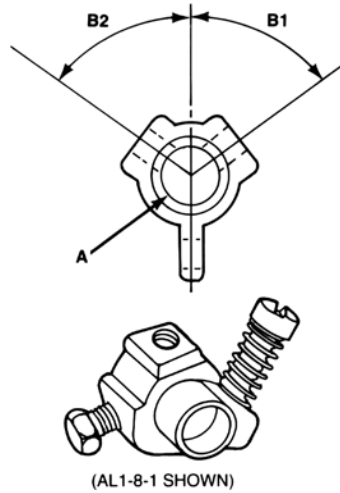
\*Variation of the AL1-33 can be made form the standard AL1-33 lever.

## Stamped Steel Throttle Clamp Levers



LEVER	MT. HOLE I.D. (A)	WIDTH (D)	USABLE LENGTH (E)	B1	C1	B2	C2	B3	C3	NOTES
<u>AL1-46*</u>	7.9 mm (0.313")	12.7 mm (0.500")	47.6 mm (1.875")							

### Throttle Stop Levers

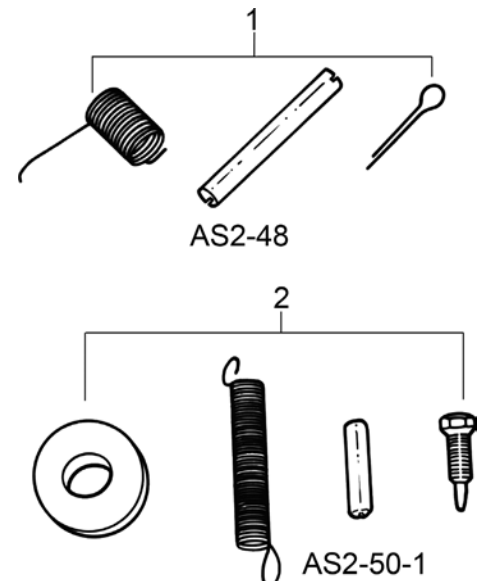


LEVER	MT. HOLE I.D. (A)	WIDTH (D)	USABLE LENGTH (E)	B1	B2
AL1-8-1	6.4MM (0.250")	9.5MM (0.375")	19.1MM (0.750")	50°	50°
AL1-8-2	7.9MM (0.313")	9.5MM (0.375")	19.1MM (0.750")	50°	50°
AL1-10	9.5MM (0.375")	11.1MM (0.438")	22.2MM (0.875")	54°	54°
AL1-11-1	11.1MM (0.438")	11.1MM (0.438")	25.4MM (1.000")	57°	57°

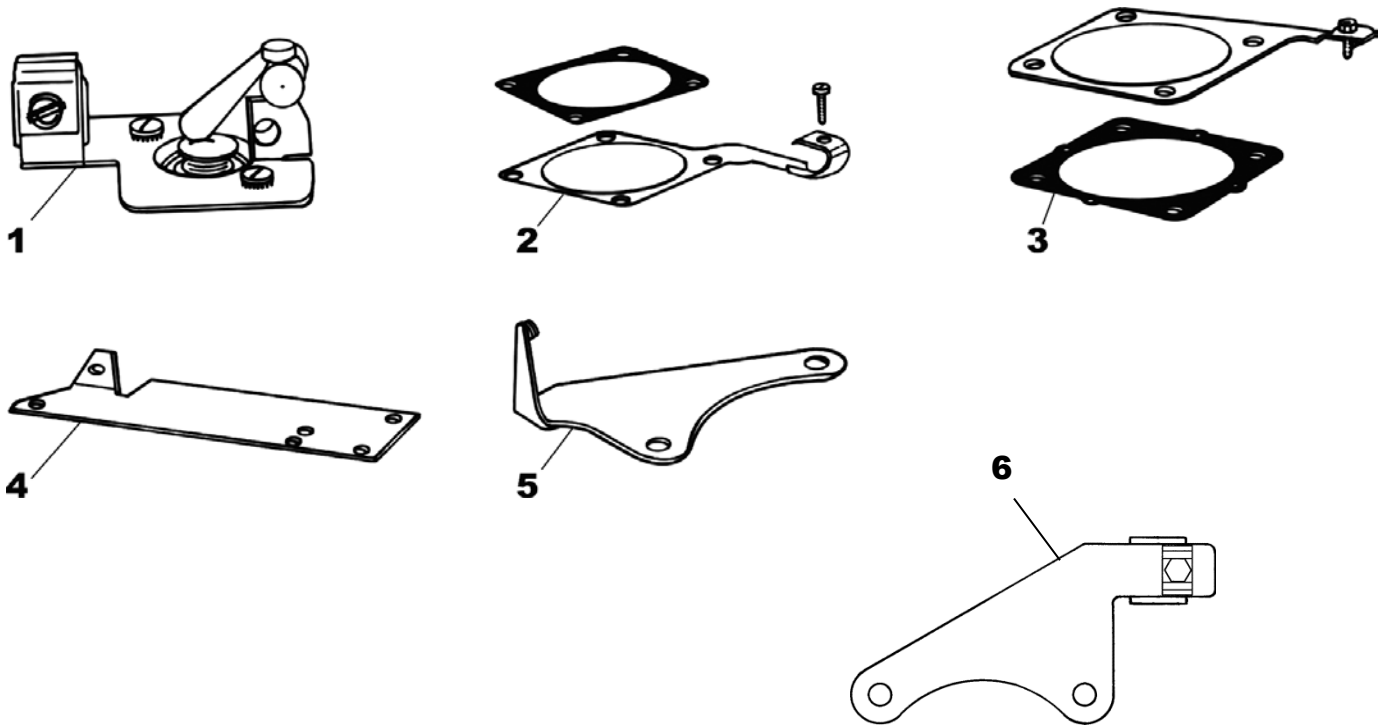
Dimensions given are subject to change without notice

### AS2 MODEL THROTTLE RETURN SPRING KITS

ITEM#	PART#	DESCRIPTION
1	AS2-50-1	Spring Assy, throttle return, 6.4mm (0.250") shaft
	AS2-50-2	Spring Assy, throttle return, 7.9mm (0.313") shaft
2	AS2-50-3	Spring Assy, throttle return, 9.5mm (0.3750") shaft
	AS2-50-4	Spring Assy, throttle return, 6.4mm (0.438") shaft
3	S2-50	Spring Assy, throttle return (CA55, CA100 & CA125)
4	S2-50-2	Spring Assy, throttle return (CA100 & FT60)



## AB1 / AB4 Bracket Assemblies



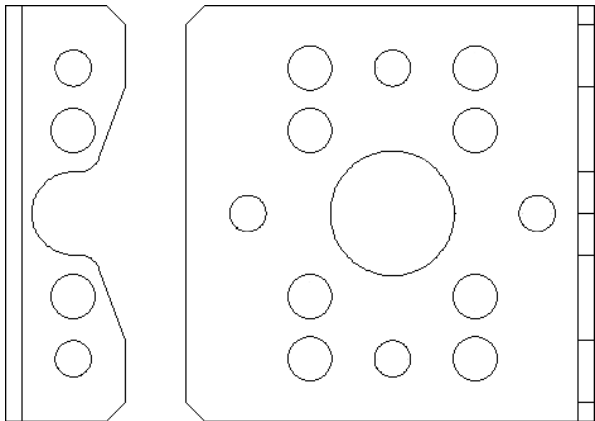
ITEM#	PART#	DESCRIPTION
1	<u>AB1-28*</u>	Primer, manual, E & J Series Converters
2	AB4-1	Bracket Assy Boden Wire, 200 & 225
	AB4-2	Bracket Assy Boden Wire, CA100 & CA125
3	AB4-4	Bracket Assy Boden Wire for use w/AT2-7, AT2-8
4	AB4-13	Bracket Assy Boden Wire, CA55
5	<u>AB4-23*</u>	Bracket Assy, Boden Wire CA55
Not Shown	B4-15682	Bracket, Regulator, LPG-Toyota

Universal Mounting Bracket  
(obsolete)

Fuel Injectors & Misc. Components



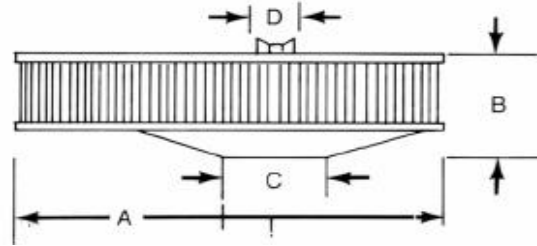
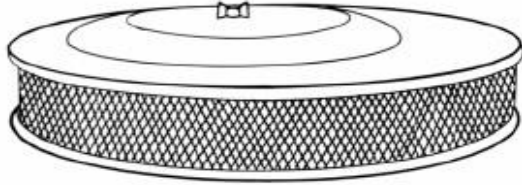
Universal Mounting Bracket (obsolete)



BRACKETS

PART #	DESCRIPTION
AP-1507	Bracket, Mounting Ass'y

## Air Filters (obsolete)



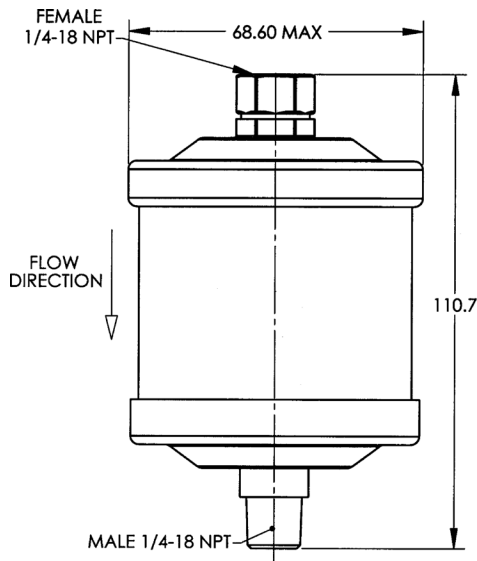
ASS'Y PART#	FLOW RATE	APPLICATION	FILTER PART#	COVER PART #	BASE PART#	STUD PART#	A	B	C	D
AF1-1	165 L/s (350 CFM)	CA300A	F1-1	C1-4	N/A	N/A	251.0mm (9.88")	69.9mm (2.75")	N/A	192.0mm (7.56")
AF1-5	71 L/s (150 CFM)	CA125	F1-5	C1-28	N/A	AS3-33	172mm (6.750")	60.3mm (2.375")	N/A	127.0mm (5.0")
AF1-7	260 L/s (550 CFM)	Various	F1-7*	C1-60	A2-55	AS3-52	357.4mm (14.07")	105.4mm (4.15")	148mm (5.84")	295.1mm (11.62")
AF1-8	118 L/s (250 CFM)	CA125	F1-8	C1-48	A2-47	AS3-33	233.4mm (9.19")	55.9mm (2.2")	128.5mm (5.06")	168.1mm (6.62")
AF1-14	236 L/s (500 CFM)	CA125/CA425	F1-14	C1-48	A2-47	AS3-51	233.4mm (9.19")	168.1mm (6.62")	128.5mm (5.06")	168.1mm (6.62")
AF1-15	189 L/s (400 CFM)	CA425	F1-15	C1-28	N/A	AS3-32	173.0mm (6.81")	168.1mm (6.62")	N/A	127.0mm (5.0")
AF1-16-2	260 L/s (550 CFM)	CA425	F1-9	C1-60	A2-54	AS3-41	357.4mm (14.07")	105.4mm (4.15")	128.5mm (5.06")	295.1mm (11.62")
AF1-16-3	260 L/s (550 CFM)	CA425	F1-7*	C1-60	A2-54	AS3-41	357.4mm (14.07")	105.4mm (4.15")	128.5mm (5.06")	295.1mm (11.62")
AF1-17-2	165 L/s (350 CFM)	CA225	F1-9	C1-60	A2-55	AS3-52	357.4mm (14.07")	105.4mm (4.15")	148mm (5.84")	295.1mm (11.62")

\*UL Recognized

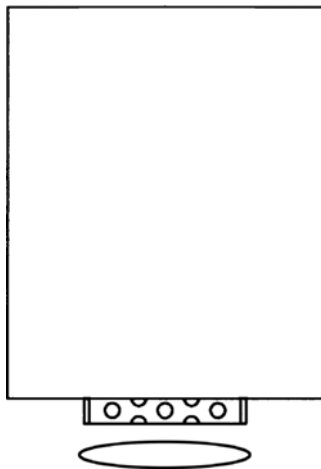
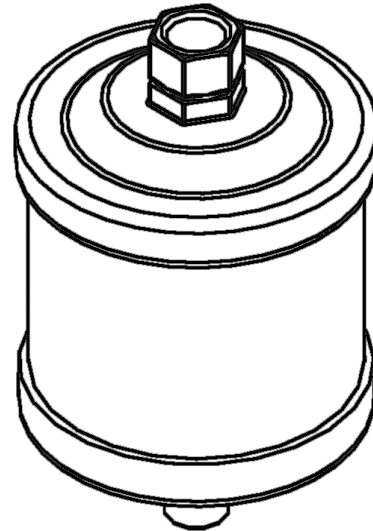
## Studs

PART #	DESCRIPTION
AS3-28	Stud Ass'y, 1/4 -20 x 5 - 1/4" Long
AS3-29	Stud Ass'y, 1/4 -20 x 3 - 1/8" Long
AS3-32	Stud Ass'y, 1/4 -20 x 4 - 1/8" Long
AS3-33	Stud Ass'y, 1/4 -20 x 1 - 1/8" Long
S3-31	Stud, 10-32
S3-34	Stud, 1/4-28

### Fuel Filters



**P/N: F1-30869-001**  
Filter Ass'y, LPG 1/4" x 1/4" NPT  
UL (MH17720)



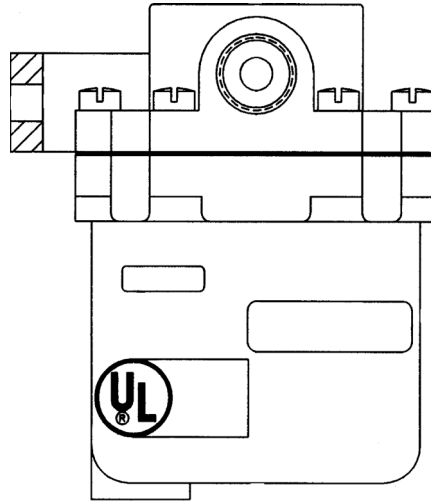
**P/N: 701**  
Filter Kit, ELF1, EF5, BFF2

**P/N: F-108** (Not Shown)  
Filter Ass'y, LPG Inline 1/4" x 1/4" NPT  
UL (AU1502) Inquire for specific ECE approval

**P/N: F-201** (Not Shown)  
Filter Ass'y, LPG Inline 1/4" x 1/4" NPT

**P/N: 20B13** (Not Shown)  
Filter Flat Mount

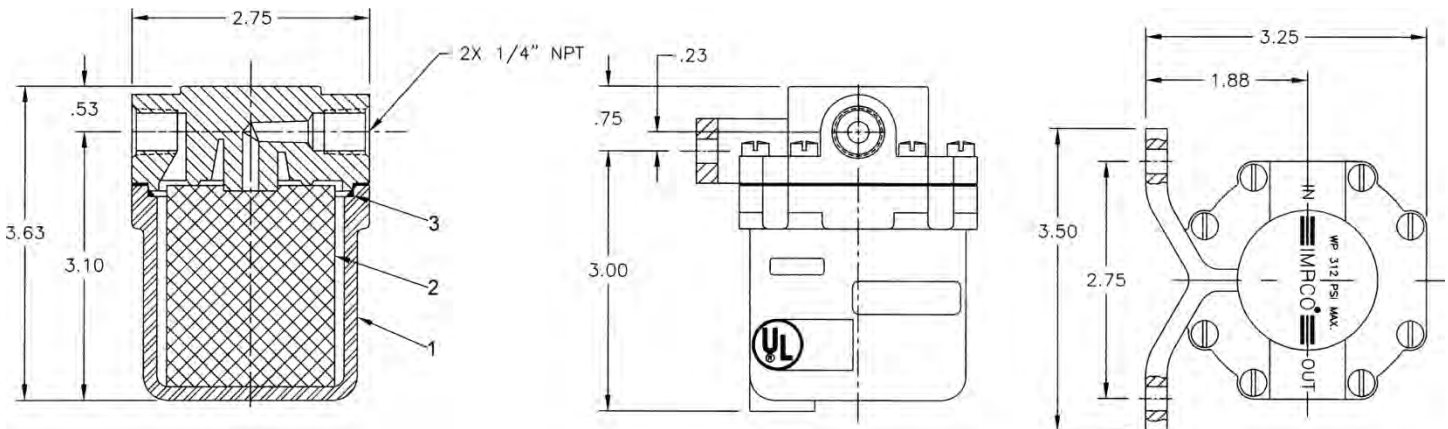
### Fuel Filters (Continued)



**P/N: F-830**

UL Certified (AU1502). Inquire for specific ECE approval

#### DIMENSIONS



ITEM #	PART#	DESCRIPTION	QTY
1	<u>2313*</u>	Filter Bowl	1
2*	688	Filter Element	1
3*	<u>S3-1524-015*</u>	O-Ring	1
4	<u>2314-1*</u>	Filter Cover	1
5	S1-3	Screw 10-24 .62 LG Slot	8
Not Shown	701	F-830 Repair Kit, Incls 2 & 3	1

## Tools & Test Equipment

### TEST EQUIPMENT

PART#	DESCRIPTION
<u>FSA-1000*</u>	Fuel system analyzer, shows O2 sensor voltage & duty cycle, used to calibrate closed-loop systems
G2-2	Gauge, used to set lever height, included in ITK-1

### TAMPER RESISTANT COMPONENTS

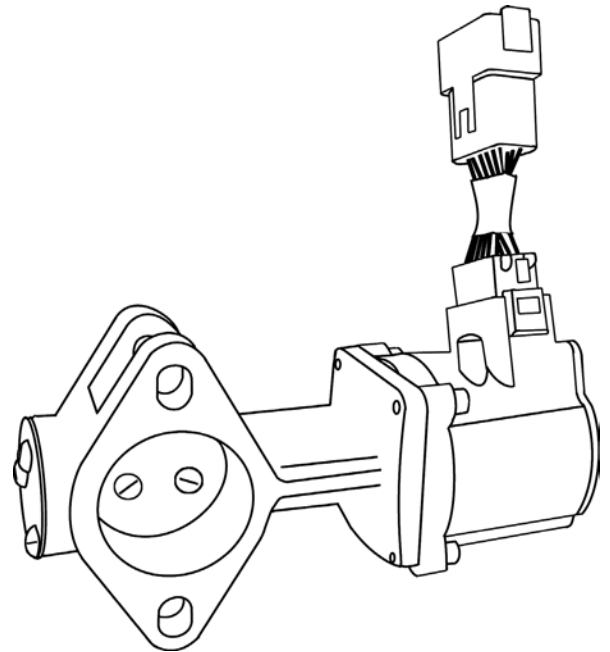
PART#	DESCRIPTION
P3-17956-10	Plug, Expansion
P3-17956-8	Plug, Expansion

### HARNESS

PART#	DESCRIPTION
<u>7380640*</u>	Harness, LCS Programming, Early Style



FSA-1000



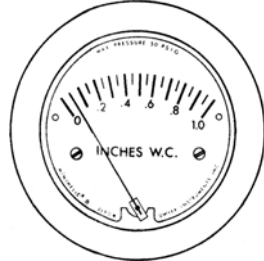
LCS Controller Shown with Electrical Adapter



**ITK-1 & ITK-4 Components**



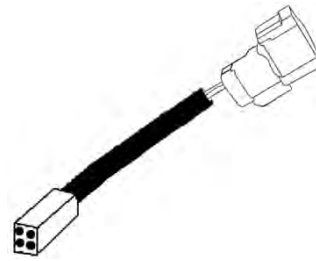
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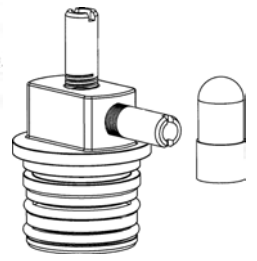
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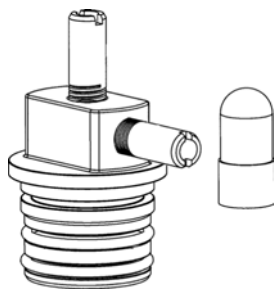
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5



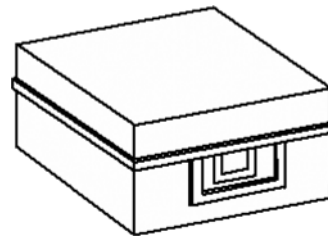
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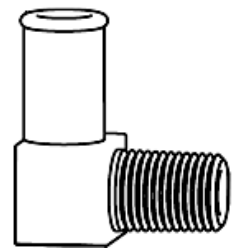
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8



9



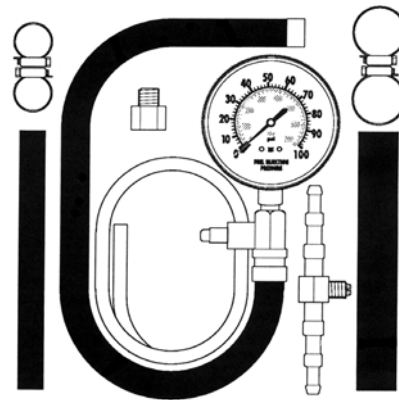
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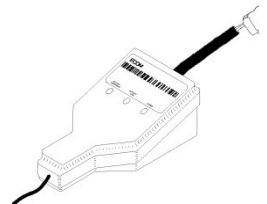
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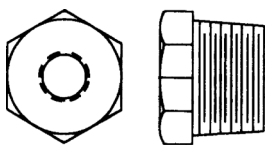
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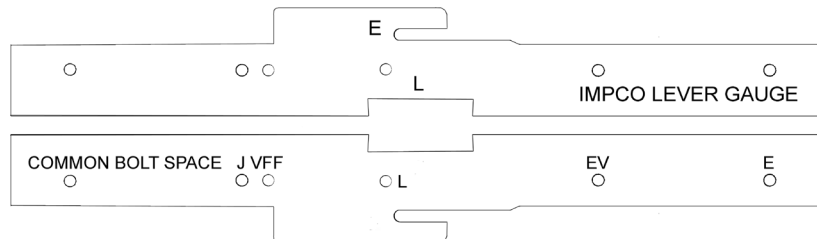
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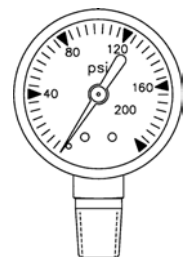
14



15



16



17

Tool Kit ITK-1

ITEM#	DESCRIPTION	QTY	PART#
1	Test Kit Gauge 0-5Psi(2-5205)	1	TG-005
2	Test Kt-Gage 0-10"Wc(2-5010)	1	TG-010
3	Hose, 3/16"Id Vacuum Bulk	8'	H1-18
6	Fitting, 1/8Npt 3/16Hs Nip Brs	1	F4-4
9	Case Plastic 12X8X3.5	1	<u>C9-25849-003*</u>
10	Fitting, 1/8Npt 1/4Hs El Nylon	1	F4-8
12	Fitting, 1/4Unf 1/4Hs Vac Nip	1	F4-2
15	Fitting, 1/2Npt 1/8 Bushing	1	B3-26
16	Gauge, Lever Height	1	G2-2
17	Test Kit Gauge	1	<u>TG-0200*</u>

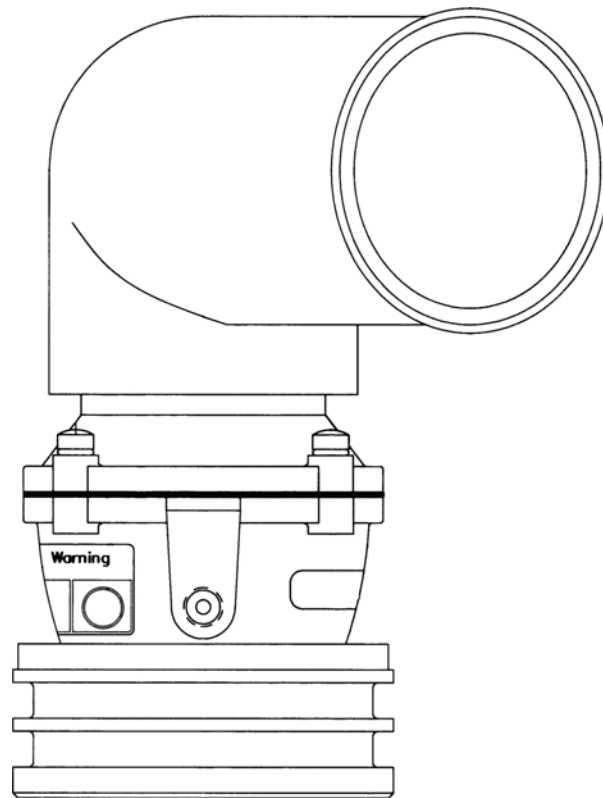
Tool Kit ITK-4

ITEM#	DESCRIPTION	QTY	PART#
1	Test Kit Gauge 0-5 PSI (2-5205)	1	TG-005
2	Test Kit-Gage 0-10" WC (2-5010)	1	TG-010
3	Hose, 3/16" Id Vacuum, Bulk	1.5'	H1-18
4	Harness, Adapter Gen 2 DLC to Gen	1	E1557400
5	Fitting Assembly, Test Cap (System II LPR Secondary Pressure Test Adapter)	1	AF4-31105
6	Fitting, 1/8 NPT 3/16Hs Nip Brass	2	F4-4
7	Assembly, Fitting Test Cap 3/4	1	AF4-50254-002
8	Pin, Retainer	10	P1-30559
9	Case, Metal, 14.25 x 9 x 4.25	1	C9-50724-001
10	Fitting, 1/8 NPT 1/4Hs El Nylon	2	F4-8
11	Tool, 20IPR Torx-Plus Bit	1	T7-50172
12	Fitting, 1/4 UNF, 1/4 HS Vac Nip	1	F4-2
13	Gauge, Test Gasoline Fuel System	1	TG-31119-001
14	ASM, CAN Dongle (ECOM Cable)	1	E2046012

## Engine Kits & Modules

PART#	DESCRIPTION
BP-4T	Upgrade kit, Toyota, 4Y and 4P Engine
<u>BP-8H*</u>	Upgrade kit, Hyster, Mazda 2L, OL
<u>MD-K8521AK*</u>	Kit, Komatsu, AX/BX LPG Series

# Turbocharger Pressure Control Valve



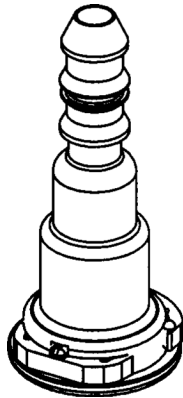
**P/N: TC2-9-C1**

## DESCRIPTION

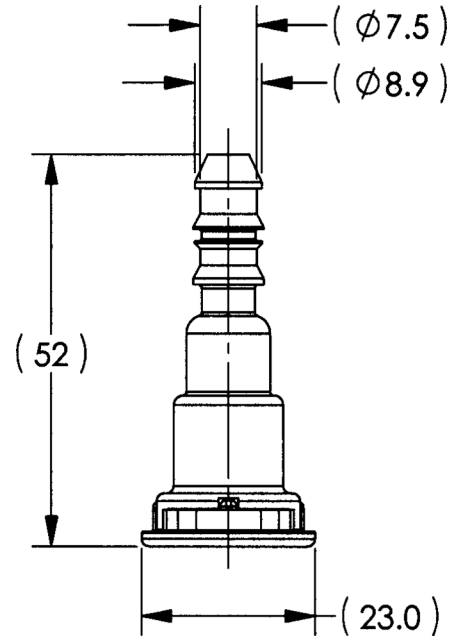
The TC2 valve allows control of boost pressure without power reducing inlet or outlet restrictions. The TC2 operates in the cool environment of the air intake while allowing the turbo to operate at 100% efficiency of the turbine up to the point of control intercept. It allows a quick throttle response and optimum horsepower production at the desired RPM range and eliminates run away pressure and potential damage to the engine.

## Quick Connect Fittings

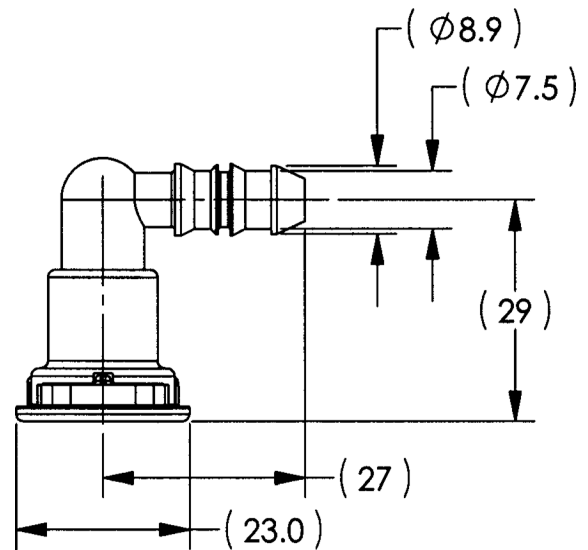
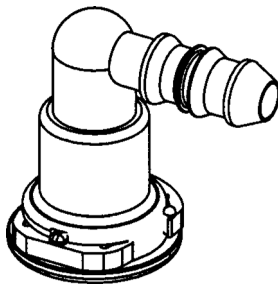
P/N: F4-30759-001



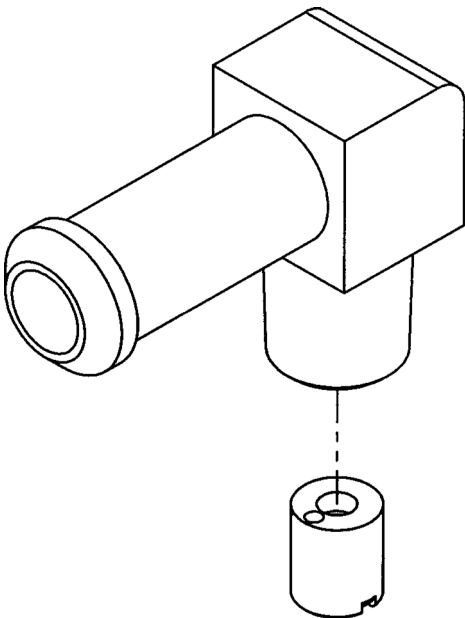
### DIMENSIONS



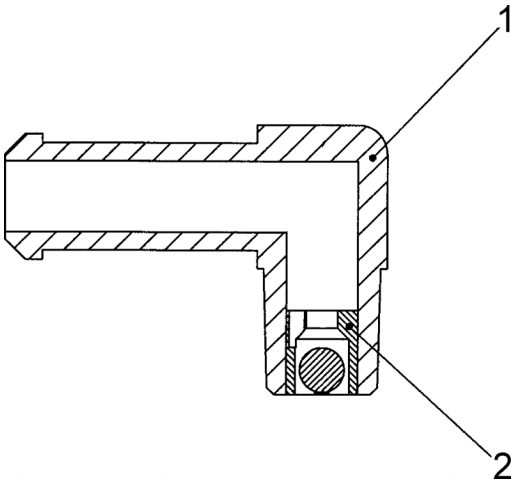
P/N: F4-30761-001



Fitting, Ball Check Assembly

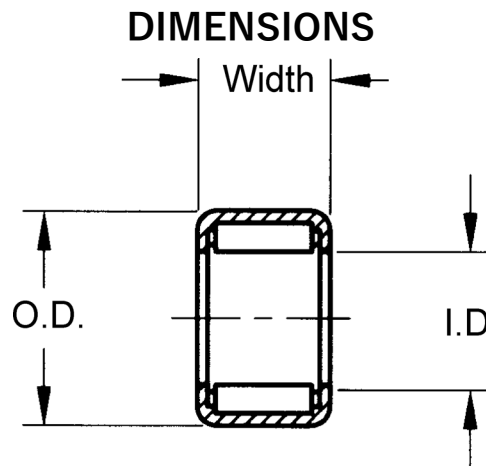
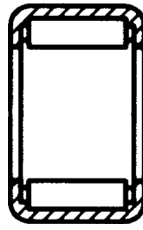


COMPONENTS



AF4-14883			
ITEM #	PART#	DESCRIPTION	QTY
1	F4-14885	Fitting, Hose	1
2	<u>AH1-4-2*</u>	Valve, Ball Check	1

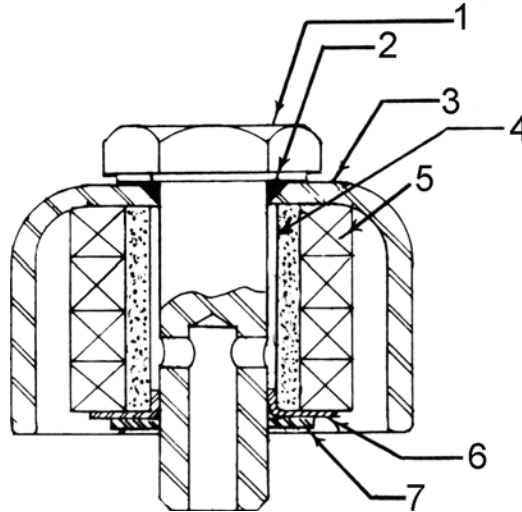
## Needle Bearings



PART#	DESCRIPTION		O.D.	I.D.	WIDTH
<u>B2-16*</u>	Bearing, Needle .687X500X625	✓	.687	0.5	0.625
B2-6	Bearing, Needle .438X250X312	✓	.438	0.25	0.312
B2-7	Bearing, Needle .500X312X312	✓	.500	0.312	0.312
B2-8	Bearing, Needle .562X375X500	✓	.562	0.375	0.5
<u>B2-9*</u>	Bearing, Needle .625X4375X50	✓	.625	0.437	0.5

## Filter Repair Kit (obsolete)

### Minor 20 Model

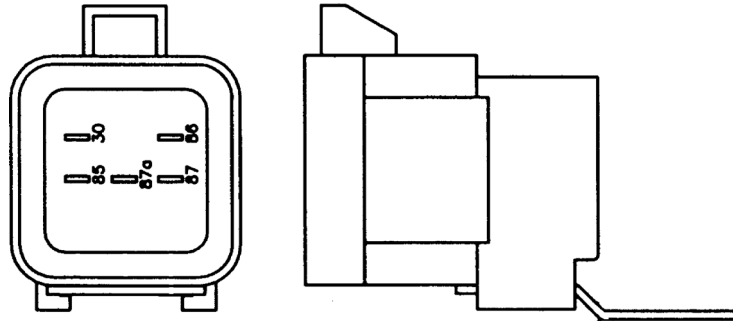


P/N: R20-11

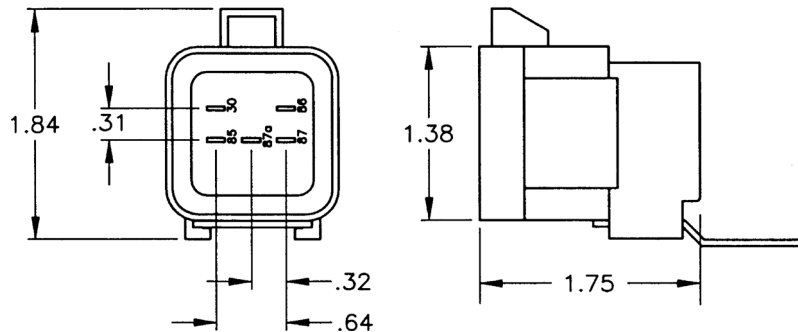
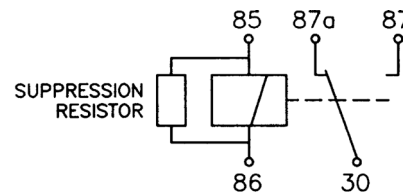
ITEM#	PART#	DESCRIPTION	QTY
1	NSS	Tie Bolt	1
2*	NSS	O-ring	1
3	NSS	Bowl	1
4*	NSS	Felt Element	4
5*	NSS	Bronze Element	1
6*	NSS	Retaining Washer	1
7*	NSS	Lower Washer Gasket	1
Not Shown*	NSS	Base Gasket	1



### Harness Relay & Bracket (obsolete)



#### SPECIFICATIONS



IMPCO P/N	PACKARD P/N	TYPE	COLOR	TEMP RANGE	VOLTAGE	CURRENT RATING	COIL RESISTANCE	TRANSIENT SUPPRESSOR RESISTOR
R3-17147	1235000	SPDT	BLACK	-40°C TO +125°C	10 TO 16V	NO 30A NC 20A	70-90 ohms	680 ohms

### Fittings & Hoses

#### F4 SERIES FITTINGS

ITEM #	PART #	DESCRIPTION
1	F4-12	Fitting, 1/8 NPT - 3/8" Hose 90°L Nylon
	F4-17	Fitting, 3/8 NPT - 5/8" Hose 90°L Nylon
	F4-8	Plastic 1/4" I.D. hose 1/8 NPT 90°L
	F4-23*	Plastic 3/4" I.D. hose 3/8 NPT 90°L
2	<u>F4-24*</u>	Fitting, 3/8 NPT - 3/4" Hose Str. Nylon
	F4-2	Fitting, 1/4"UNF - 1/4" Hose Vac. Nip.
3	P1-30559	Pin, Lock O-ring Fittings
4	S3-30563-001	O-ring, for Fittings #306

#### HOSES/TUBES/CLAMPS

ITEM #	PART #	DESCRIPTION
5	H1-5**	Hose, 7/32" O.D. for 1/4" fittings
	NSS**	Hose, 5/8" I.D. Fuel Vapor
6	NSS**	Hose ass'y, 2-5/16" ID w /Spacer
7	T1-7	Tube, .188" O.D. .035" Wall .63" L
8	C2-16664-1	Clamp, Hose .69 OD

\*\*Note: Indicate length desired as quantity.

1



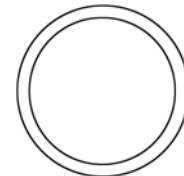
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3



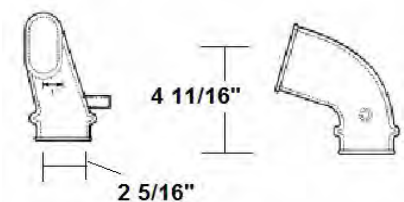
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6



7

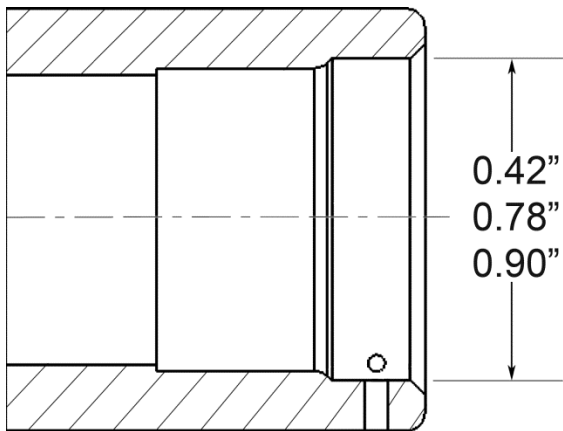


8



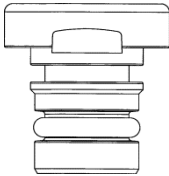
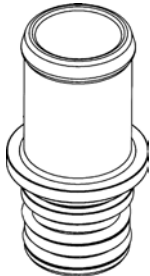
Port Fittings & Hardware

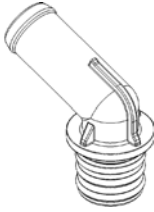

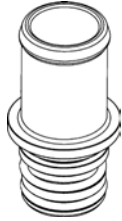
IMPCO uses several types of fittings with O-ring seals designed to fit into one of two port sizes. To determine the diameter of the fitting refer to the illustration below:

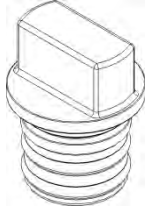



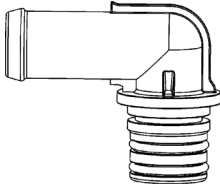
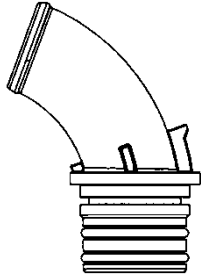
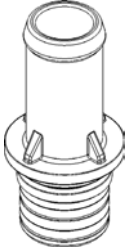
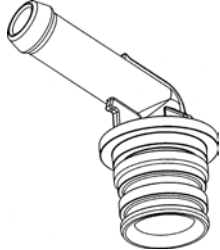
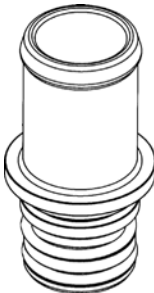
Sample Port Cross Section (design may differ by application).

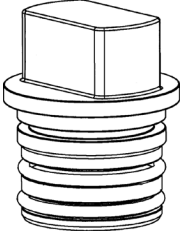
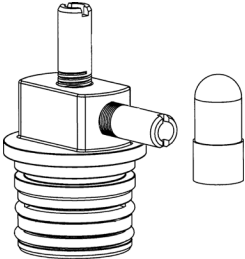
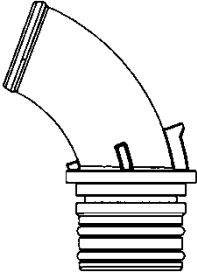
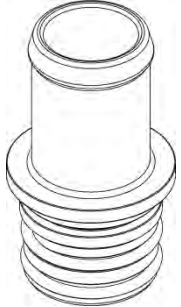
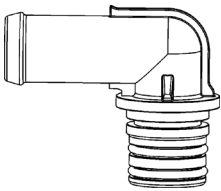
**Note:** All port fittings include the O-ring(s).

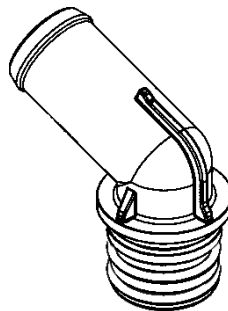
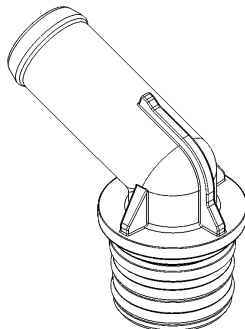
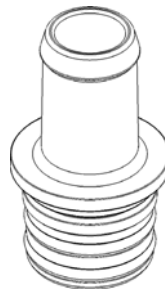
Fits .42" Port (single O-ring included)			
Assembly P/N	Description	Hose ID	Illustration
AF4-50471-001	Plug	N/A	
AF4-50739-001	Straight	3/8"	

Fits .78" Port (single O-ring included)			
Assembly P/N	Description	Hose ID	Illustration
AF4-54533-001	45° Angle	1/2"	
AF4-54338-001	70° Angle	1/2"	
AF4-54334-001	Straight	1/2"	

Fits .78" Port (double O-rings included)			
Assembly P/N	Description	Hose ID	Illustration
AF4-30613	Cap	N/A	
AF4-30614	70° Angle	5/8"	

Fits .78" Port (double O-rings included)			
Assembly P/N	Description	Hose ID	Illustration
AF4-50733-001	90° Angle	5/8"	
AF4-50430-001	Swept 70°	3/4"	
AF4-30615	Straight	5/8"	
AF4-30614-002	70° Angle	10mm or 3/8"	
AF4-50045-001	Straight	3/4"	

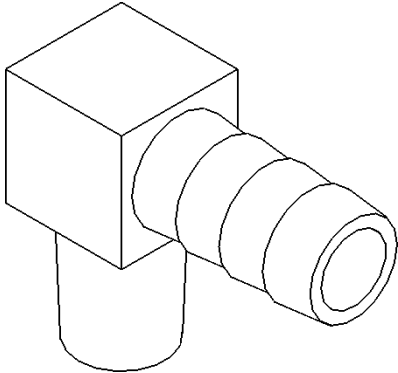
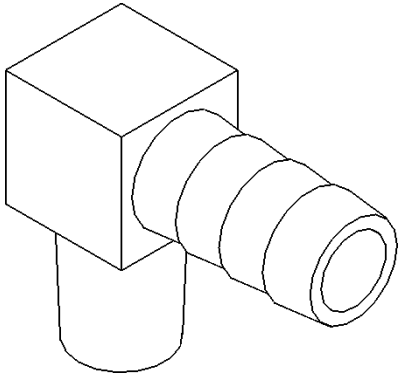
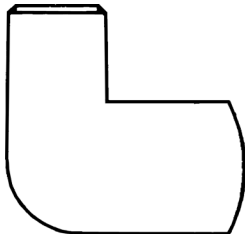
Fits .90" Port (double O-rings included)			
Assembly P/N	Description	Hose ID	Illustration
AF4-50254-001	Plug	N/A	
AF4-50254-002	Test Cap (For Intermittent Pressure Testing Only)	1/4"	
AF4-50044-001	Swept 70°	3/4"	
AF4-31193-001	Straight	3/4"	
AF4-52930-001	90° Angle	5/8"	

Fits .90" Port (double O-rings included)			
Assembly P/N	Description	Hose ID	Illustration
AF4-31197-001	70° Angle	3/4"	
AF4-31259-001	70° Angle	5/8"	
AF4-31260-001	Straight	5/8"	

## Port Fittings & Hardware

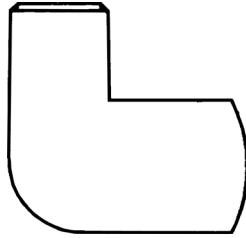
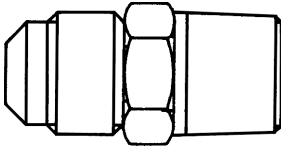
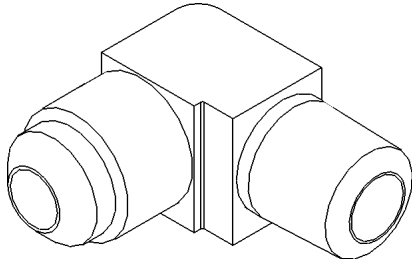
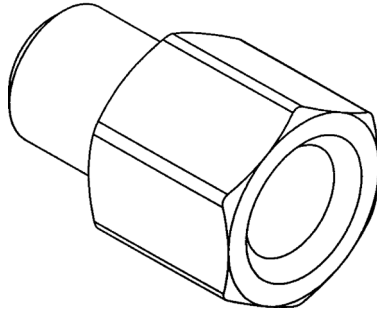
### Fuel Injectors & Misc. Components

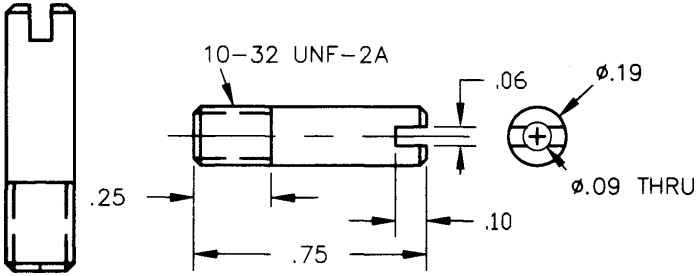
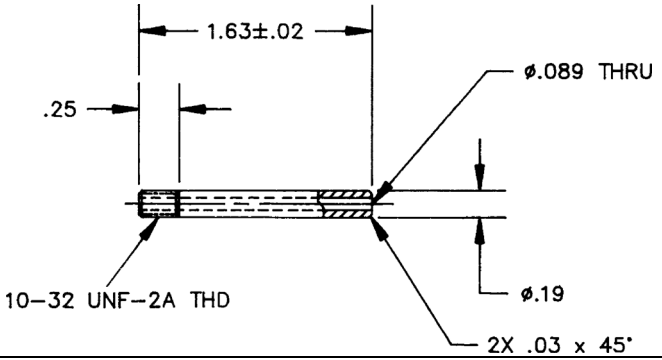
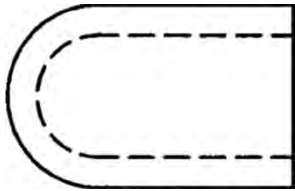

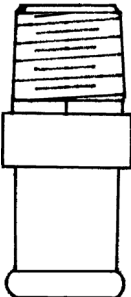


Assembly P/N	Description	Dimensions	Illustration
401-02	90 Elbow Brass	1/8" NPT 3/8" Hose	
401-04	90 Elbow Brass	1/4" NPT 3/8" Hose	
417-03	90 Elbow Brass	3/8" NPT Male/Female	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



Assembly	Description	Dimensions	Illustration
F4-14184-002	Elbow, brass, 90 degree	¼" NPT Male/Female	
F4-14220	Fitting, Flare, brass #6 SAE 3/8"	¼" NPT 3/8"	
F4-25	Fitting, 90 degree Elbow #6 SAE	¼" NPT 3/8" Flare	
F4-30953-001	Fitting, Adapter, Brass	¼" NPT	

Assembly	Description	Dimensions	Illustration
2F-137	Fitting, Brass	See Illustration	
2F-158P	Fitting, Brass	See Illustration	
C2-30500-002	Cap, Vacuum 3/6"		
181-09	Fitting, Idle		
F4-18	Fitting, straight	3/8 NPT 5/8 Nip Nylon	

# Spectrum Series II

## (2004 - 2006)



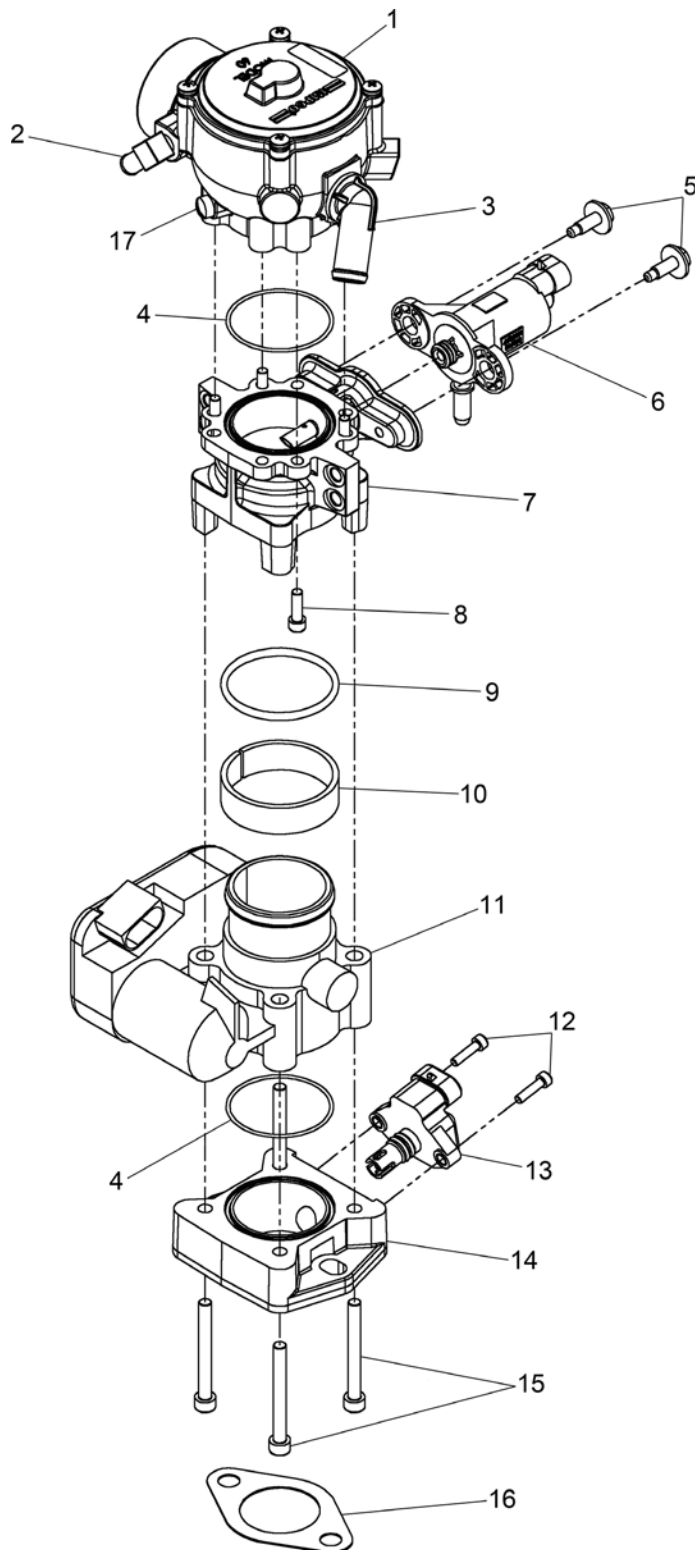
IMPCO technologies offers factory replacement fuel system components for the Spectrum Series II certified engine systems. These components are only available through authorized IMPCO distributors.

Factory service manuals, repair procedures, and TSBs must be acquired and used through the OEM parts network. IMPCO Technologies is not able to supply these materials.

2.0-2.4L Mitsubishi Lift Trucks.....	286
3.0L LPG Lift Trucks.....	301
3.0L Gasoline Lift Trucks.....	314
4.3L LPG Lift Trucks.....	323
4.3L Gasoline Lift Trucks.....	342
4.3L Dual Fuel Lift Trucks .....	355

## 2.0-2.4L Mitsubishi Lift Trucks

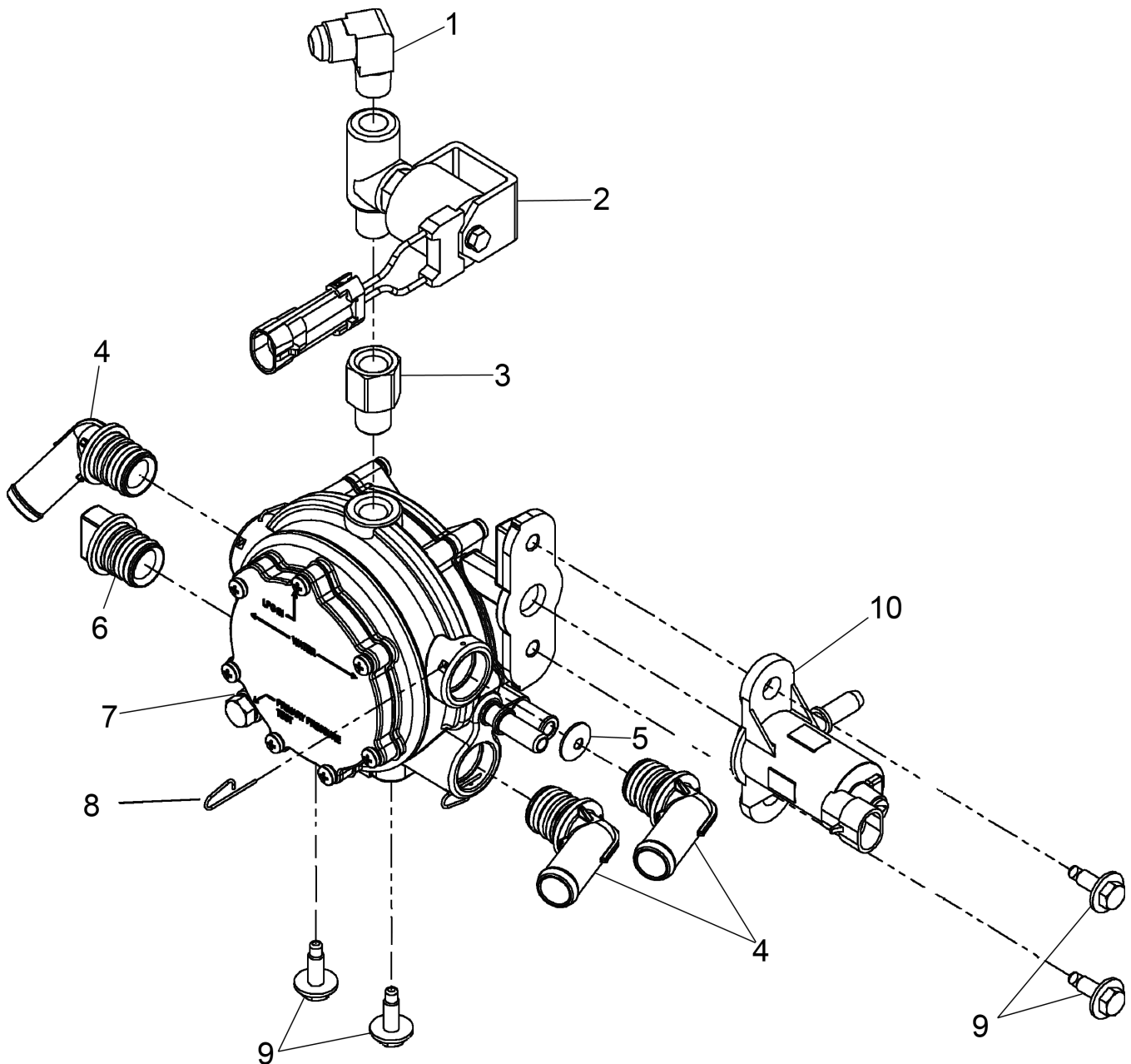
### LPG MIXER AND THROTTLE BODY ASSEMBLY



**LPG MIXER AND THROTTLE BODY ASSEMBLY**

<b>Item Number</b>	<b>Description</b>	<b>Qty</b>	<b>IMPCO Part Number</b>
1	Assembly, Mixer FT 60	1	FT60M-30741-52-001
2	Fitting, 90 Degree	1	F4-12
3	Fitting, 70 D	1	AF4-30614
4	O-ring, Hydrogenated Nitrile	2	S3-1524-003
5	Bolts, FTV Mounting	2	<u>S1-30283-0620</u>
6	Valve, Fuel Trim	1	<u>V3-30270-277</u>
7	Adapter, Assy. FTV	1	<u>AA3-30952-001</u>
8	Screw, Adapt to Mixer	4	<u>S1-30295-0516</u>
9	O-ring, FTV to Throttle Control	1	S3-1524-004
10	Sleeve, Plastic	1	S6-30976-001
11	Control, Throttle Bosch	1	E1312100
12	Screw, TMAP	2	S1-30295-0416
13	Sensor, TMAP	1	S8-30862-001
14	Adapter, Throttle to Manifold	1	<u>A3-30875-001</u>
15	Bolts, Throttle Body to Adapter	2	<u>S1-30295-0655</u>
16	Gasket, Adapter to Manifold	1	G1-18
17	Screw, Mixer	1	S1-69
Not Shown	Fitting, ¼ Vac Nipple	1	F4-2
Not Shown	Pin, Retainer Fitting	1	P1-30559
Not Shown	Plug, Mixer	1	P3-16699-001

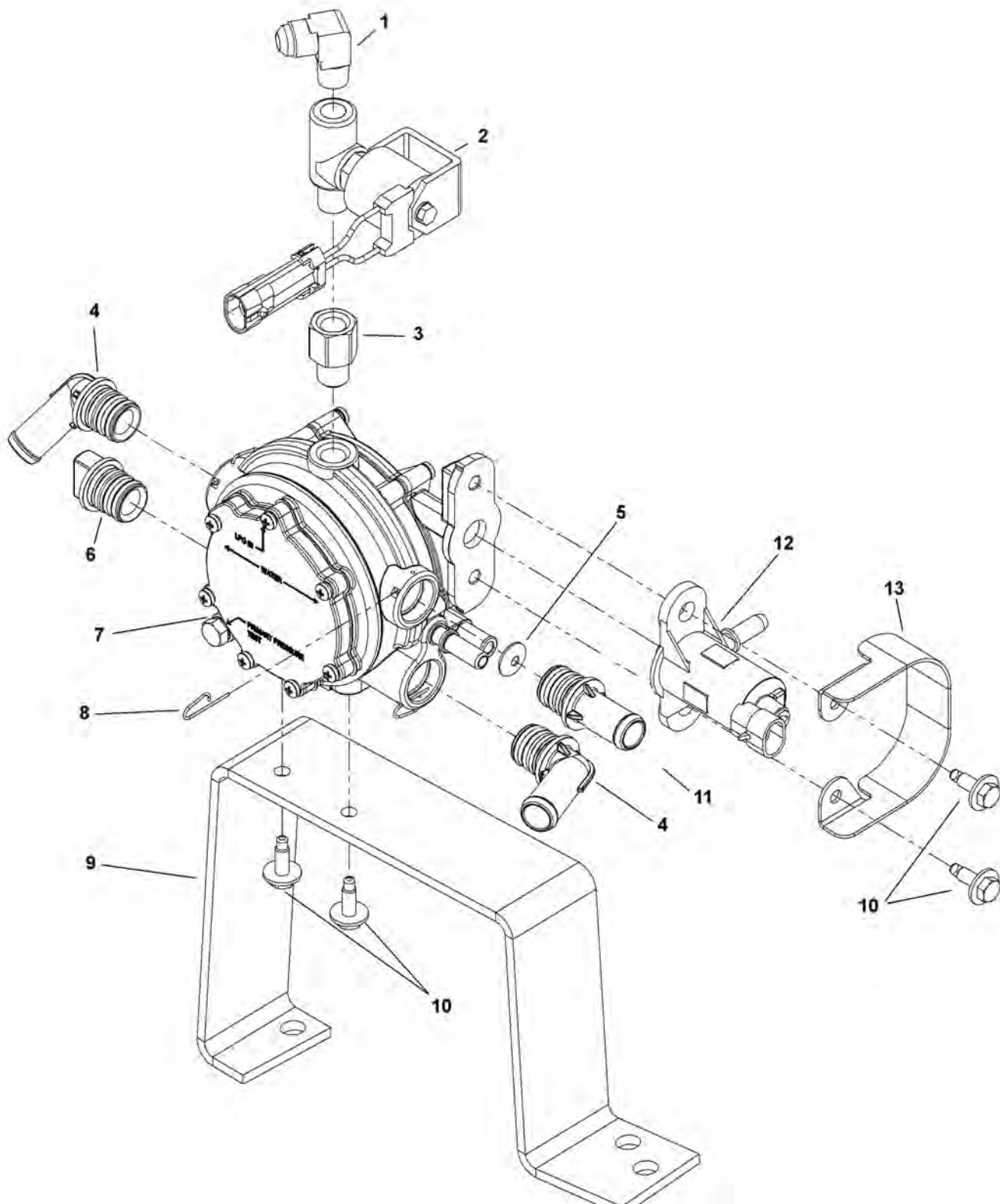
## LPG REGULATOR ASSEMBLY (HHI)



**LPG REGULATOR ASSEMBLY (HHI)**

Item Number	Description	Qty	IMPCO Part Number
1	Fitting, 90 Degree Elbow	1	F4-25
2	Valve, Lock off Ass'y	1	ET98-30515-001
3	Fitting, Adapter ¼ NPT	1	F4-30953-001
4	Fitting, 70 Degree	3	AF4-30614
5	Jet, Coolant Restrictor	1	J1-30872-047
6	Fitting, Cap	1	AF4-30613
7	Regulator, Low Pressure	1	CS4-30772-004
8	Pin, Fitting Retainer	4	P1-30559
9	Bolt, Regulator, PTV Mnt	4	<u>S1-30283-0620</u>
10	Valve, Pressure Trim	1	<u>V3-30270-277</u>

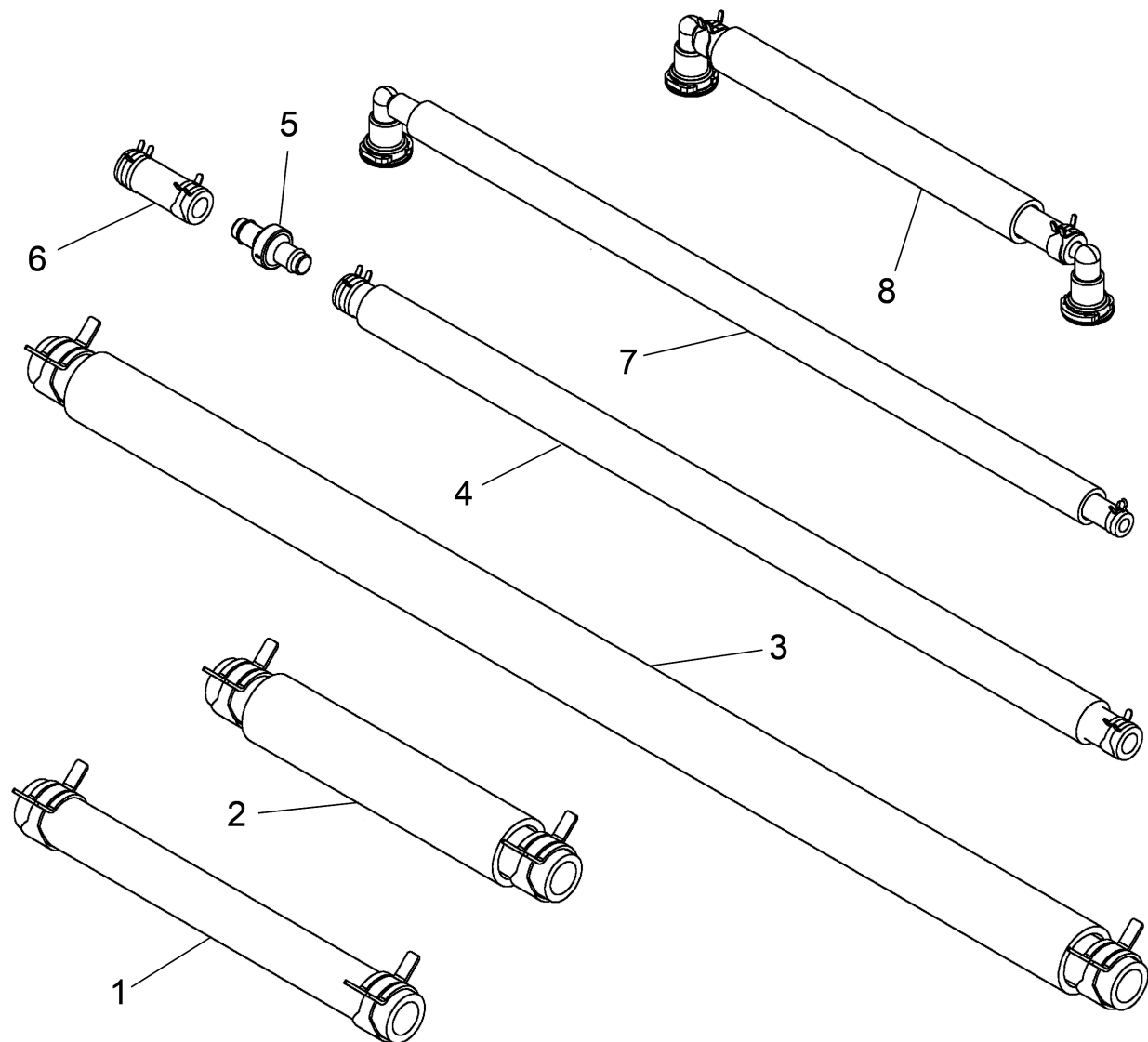
## LPG REGULATOR ASSEMBLY (MCFA)



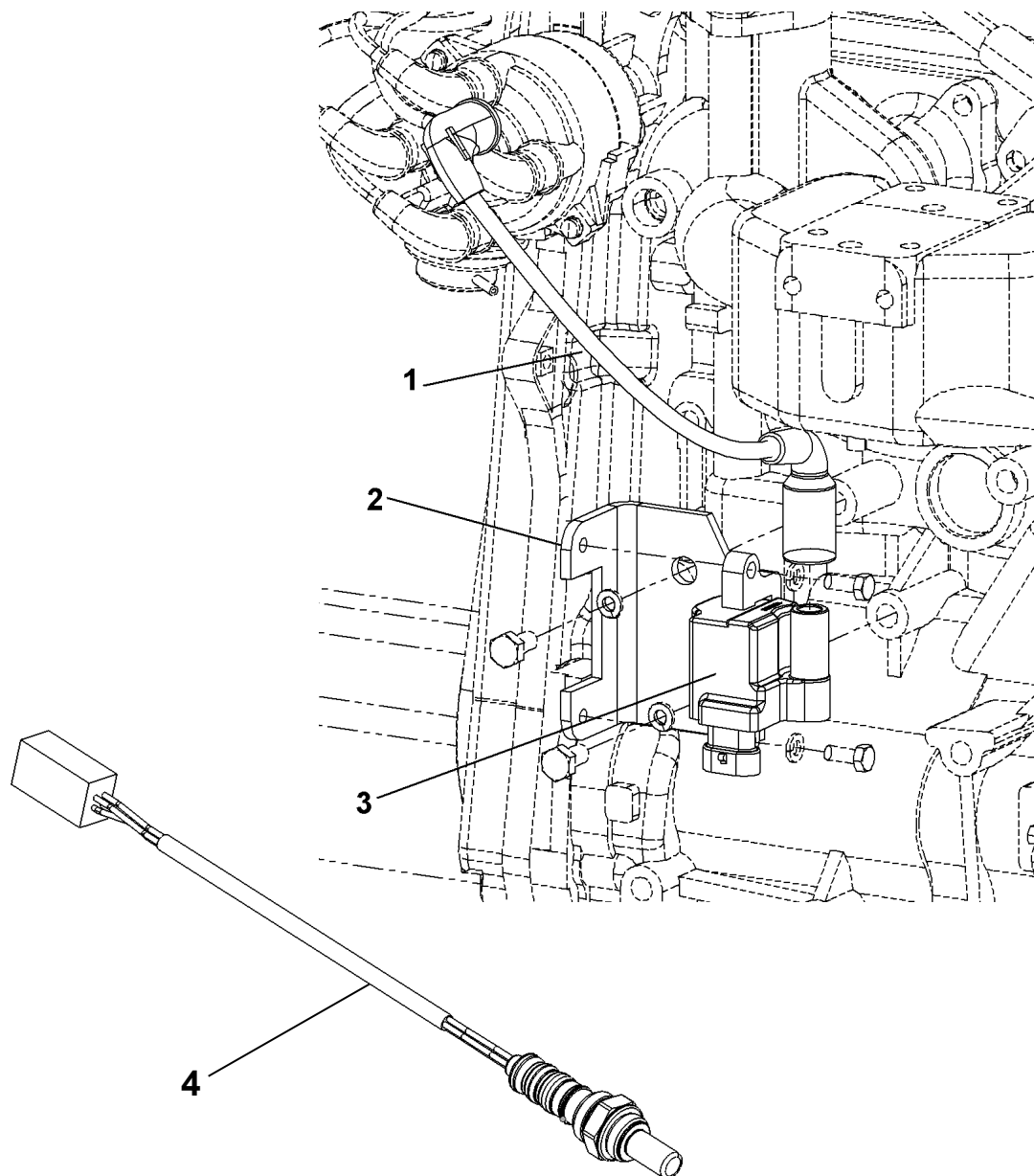


**LPG REGULATOR ASSEMBLY (MCFA)**

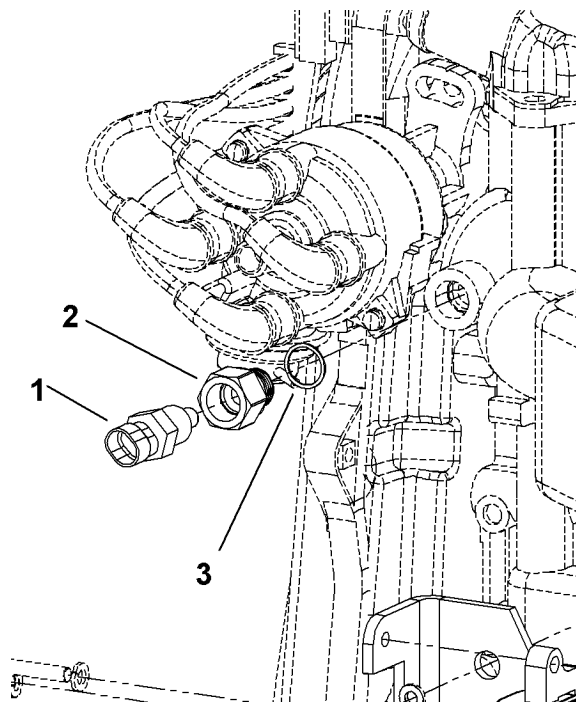
Item #	Description	Qty	IMPCO Part Number
1	Fitting, 90 Degree Elbow	1	F4-25
2	Valve, Lock off Ass'y	1	ET98-30515-001
3	Fitting, Adapter ¼ NPT	1	F4-30953-001
4	Fitting, 70 Degree	2	AF4-30614
5	Jet, Coolant Restrictor	1	J1-30872-047
6	Fitting, Cap	1	AF4-30613
7	Regulator, Low Pressure	1	CS4-30772-004
8	Pin, Fitting Retainer	4	P1-30559
9	Bracket, Regulator Mnt	1	<u>B4-30991-001</u>
10	Bolt, Regulator, PTV Mnt	4	<u>S1-30283-0620</u>
11	Fitting, Straight	1	AF4-30615
12	Valve, Pressure Trim	1	<u>V3-30270-277</u>
13	Guard, PTV	1	<u>G4-30894-001</u>

**HOSES (OBSOLETE)**

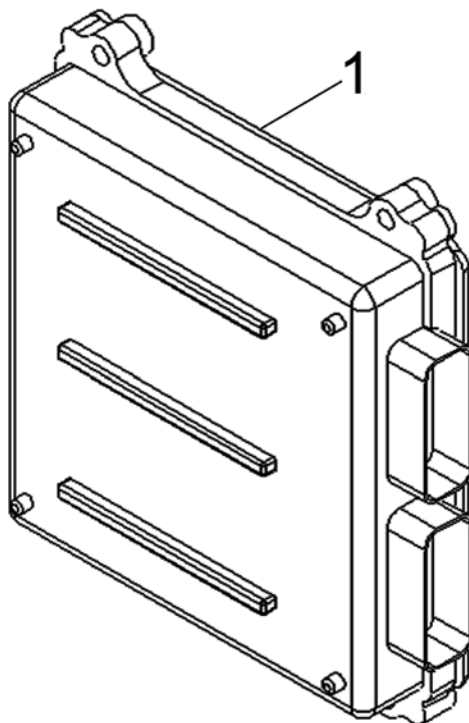
Item Number	Description	Qty	IMPCO Part Number
1	Ass'y, Hose Reg to Manif	1	AH1-30853-009
2	Assembly, Dry Gas Supply	1	AH1-30853-015
3	Ass'y, Hose Reg to w/ Pump	1	AH1-30853-006
4	Ass'y, Bal Hose Check to Reg	1	AH1-30853-013
5	Valve, Check	1	V3-30958
6	Ass'y, Bal Hose Check to Mix	1	AH1-30853-004
7	Assembly, Hose PTV	1	AH1-30852-010
8	Assembly, Hose FTV	1	AH1-30852-005

**IGNITION COIL & HEGO (OBSOLETE)**

Item #	Description	Qty	Part Number	GM Part Number
1	Wire, Ignition Coil	1	7245160	
2	Bracket, Ignition Coil	1	7245130	
3	Coil, Ignition	1		12558693
4	HEGO, Pre-Catalyst	1		12559850

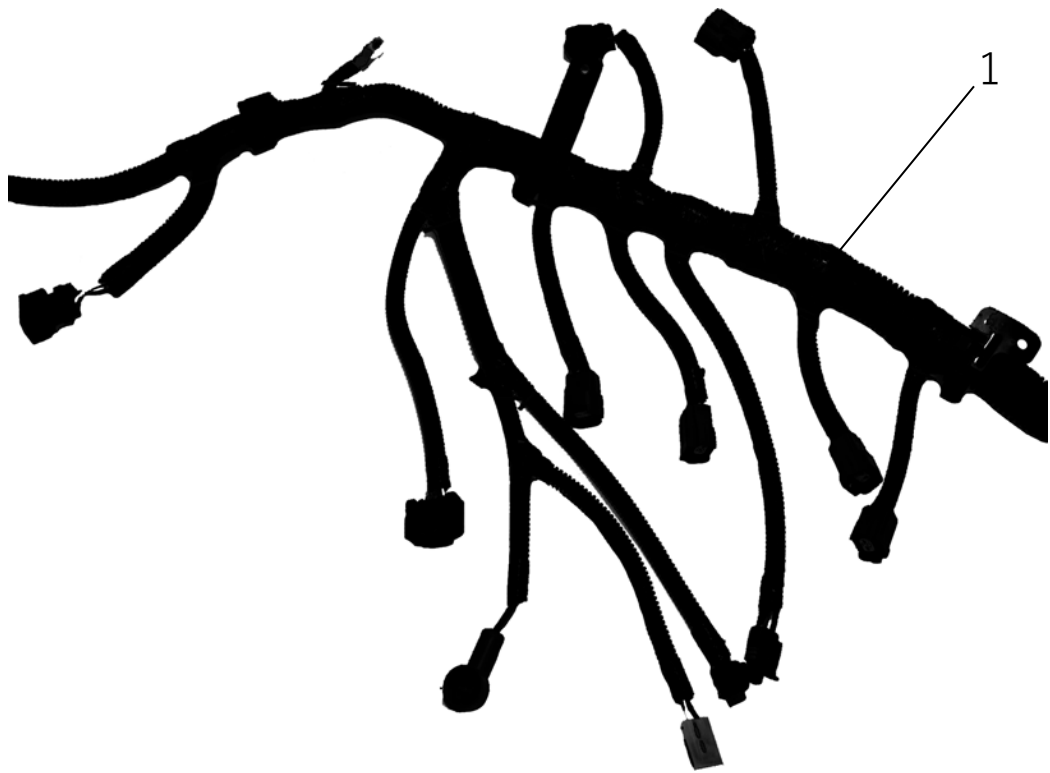
**ENGINE COOLANT TEMPERATURE SENSOR (ECT) (OBSOLETE)**

Item Number	Description	Qty	IMPCO Part Number	GM Part Number
1	Sensor, Engine Temp	1		15326386
2	Adapter, ECT	1	F4-31076-001	
3	Seal, Copper Face	1	S3-30887-002	

**ENGINE CONTROL UNIT (OBSOLETE)**

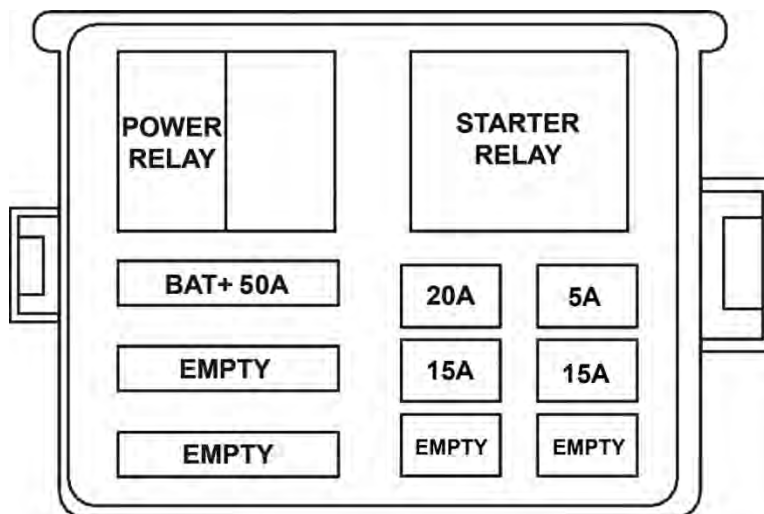
Item #	Description	Qty.	Part Number
1	NMHG/NACCO/Hyster/Yale 2067796 Cush Truck	1	0529801
	2.0L MCFA 21FN-20020		1427701
	2.0L HHI/MCFA		1427801
	2.4L MCFA 21FK-20020, 9356501200		1527701
	2.4L MCFA/HHI 21FK-20020		1527801

**WIRE HARNESS ENGINE ELECTRICAL**



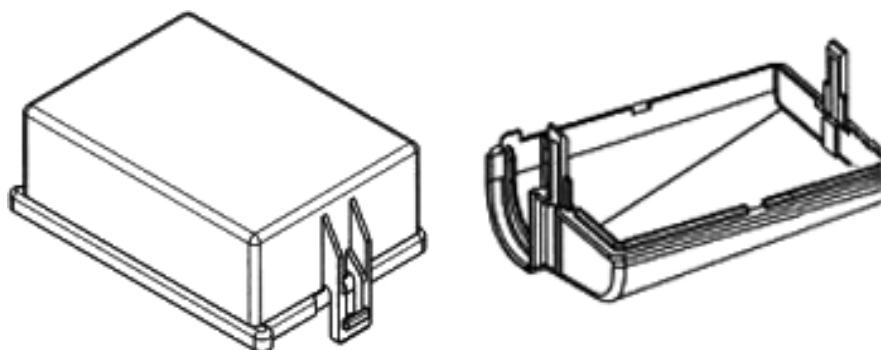
Item #	Description	Qty	Part Number
1	Harness, Engine Electrical DBW	1	E1503000

## WIRE HARNESSES/ENGINE ELECTRICAL/FUSE BOX (OBSOLETE)



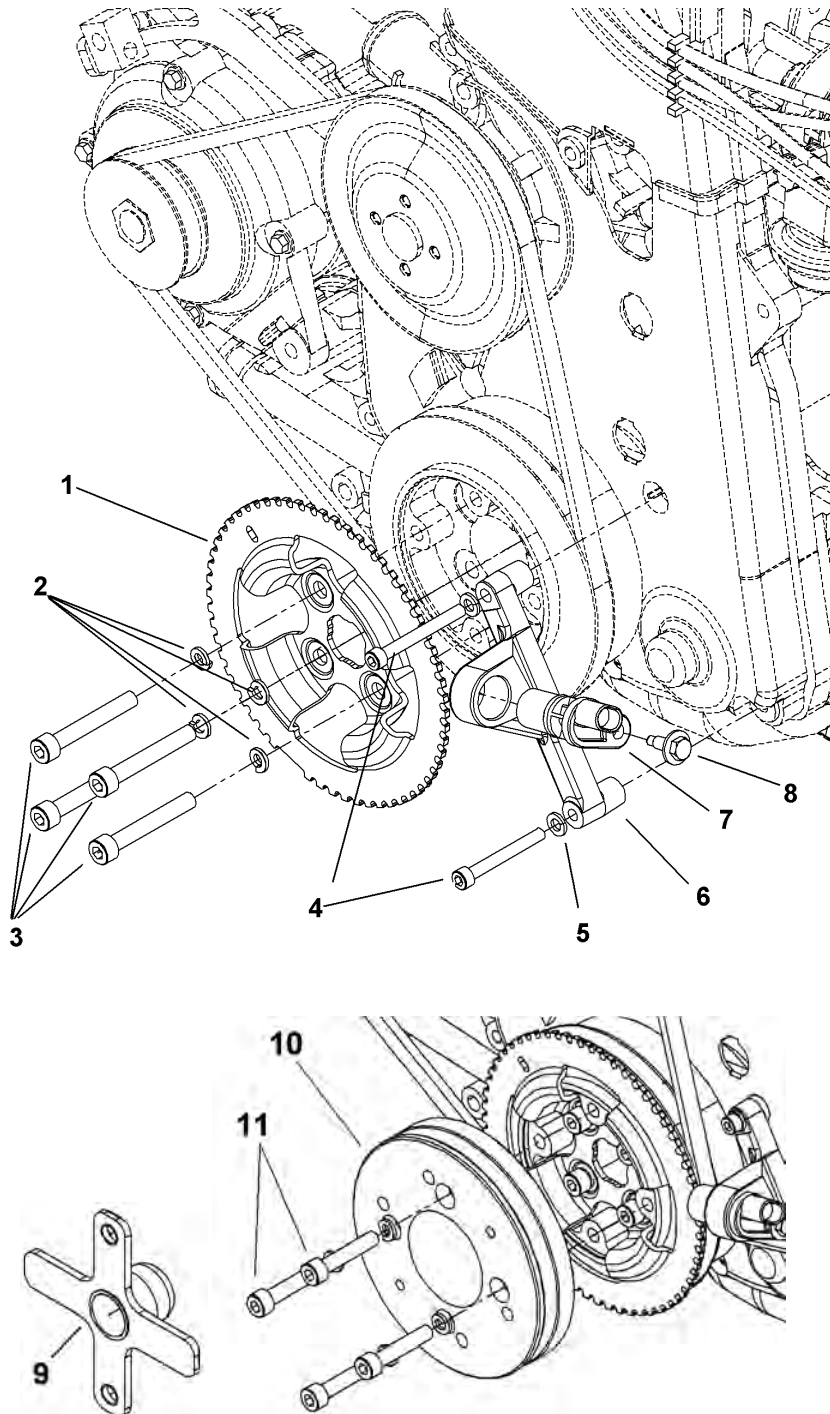
*Layout may vary depending on application*

### Fuse Box Covers



Item #	Description	Qty	IMPCO Part Number
Power Relay	Power Relay	1	885014
Starter Relay	Starter Relay	1	7381290
Alternator 50A Fuse	50A Maxi Fuse	1	7381280
5A Fuse	5A Minifuse	1	7380660
15A Fuse	15A Minifuse	1	7381220
20A Fuse	20A Minifuse	1	7381270
	Fuse Box Cover (Top) w/Label	1	E-6131-1
	Fuse Box Cover (Top) w/o Label	1	E-6131
	Fuse Box Cover (Bottom)	1	E-6132

## FRONT TIMING WHEEL ASSEMBLY

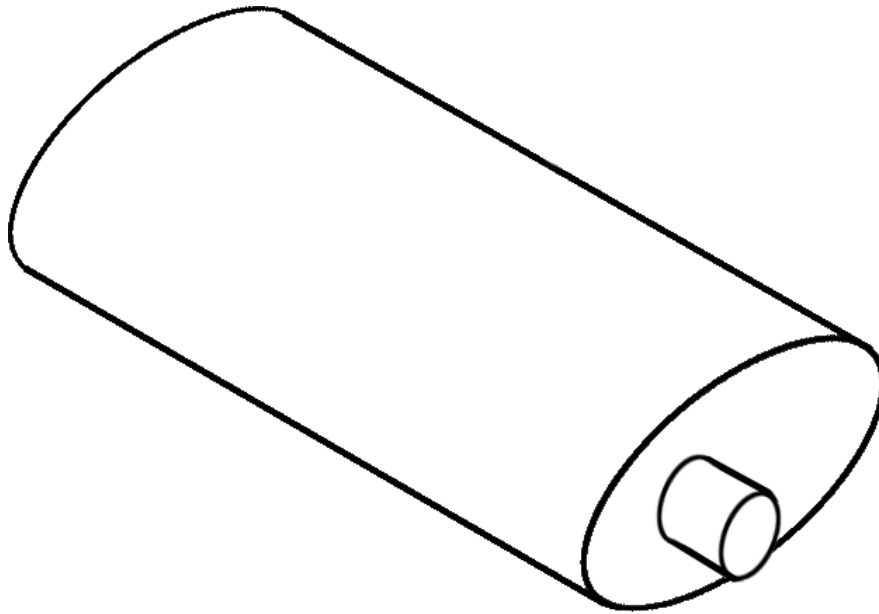




**FRONT TIMING WHEEL ASSEMBLY (OBSOLETE)**

Item Number	Description	Qty	IMPCO Part Number	GM Part Number
1	Wheel, Timing	1	7180500	
2	Washer, Split Lock M8	4	W1-31135-008	
3	Bolt, Tmg wheel to Pulley	4	S1-30295-0855	
4	Bolt, Sensor Bracket	2	S1-30295-0650	
5	Washer, Split Lock M6	2	W1-1988-001	
6	Bracket Sensor Timing	1	NSS	
7	Sensor, Crankshaft	1		12567712
8	Bolt, Crank Sensor	1	S1-30283-0620	
9	Tool, install Tmg Wheel	1	7180501	
10	Pulley, Fan 4G6X HHI	1	7071820	
11	Screw, SCK HD	4	S1-30295-0840	

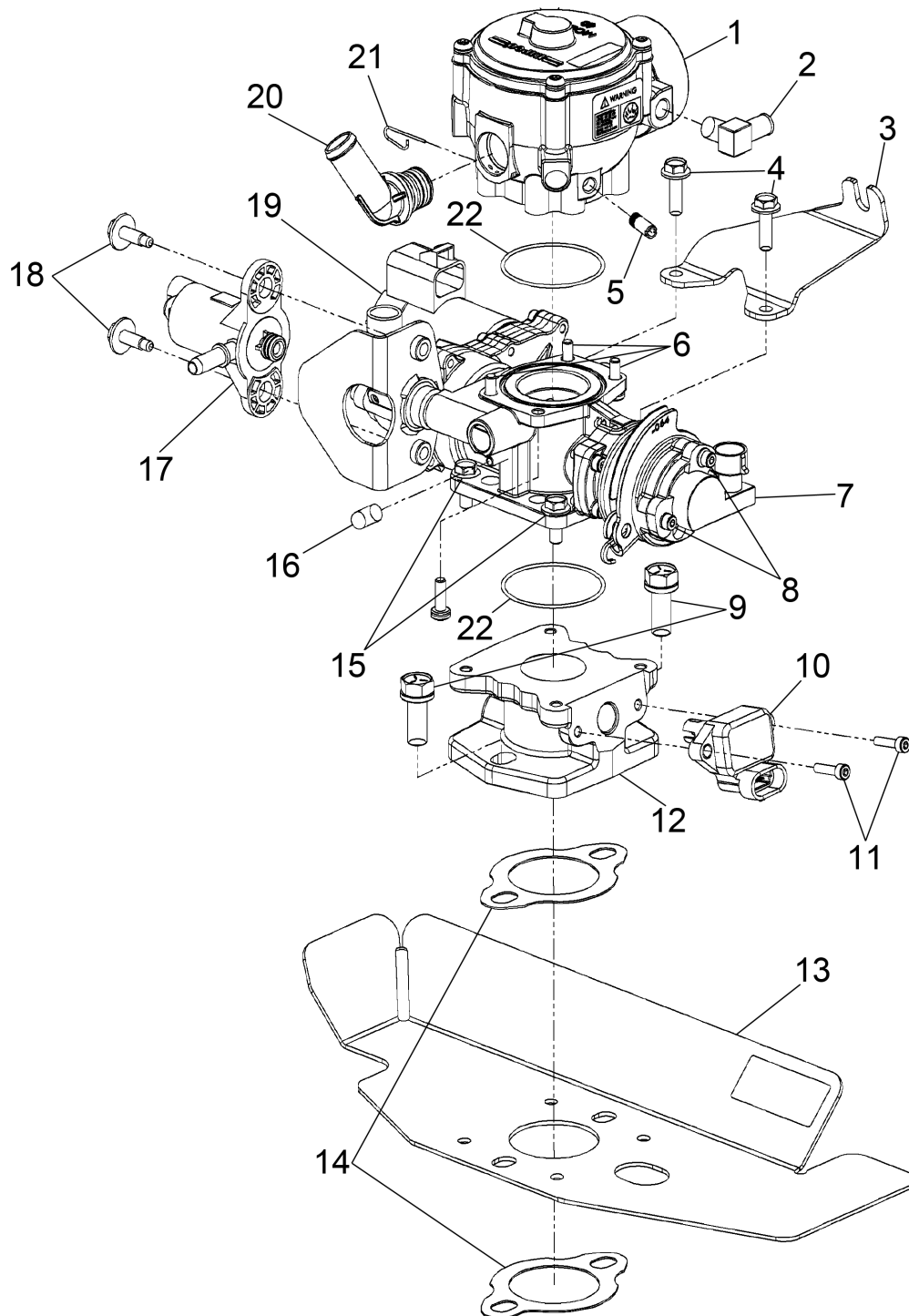
### THREE WAY CATALYTIC MUFFLER (OBSOLETE)



Description	Application	Qty	Part Number
Muffler, Three Catalytic LPG	HLFC15-5	1	7332500
Muffler, Three Catalytic LPG	HLF15-5	1	7332510
Muffler, Three Catalytic LPG	HLFC18-5	1	7332500
Muffler, Three Catalytic LPG	HLF18-5	1	7332510
Muffler, Three Catalytic LPG	HLF20-5	1	7332490
Muffler, Three Catalytic LPG	HLF25-5	1	7332490
Muffler, Three Catalytic LPG	HLF30-5	1	7332490
Muffler, Three Catalytic LPG	MMC 2 & 3 Ton	1	7332410
Muffler, Three Catalytic LPG	MMC 1 Ton	1	7332420

## 3.0L LPG Lift Trucks

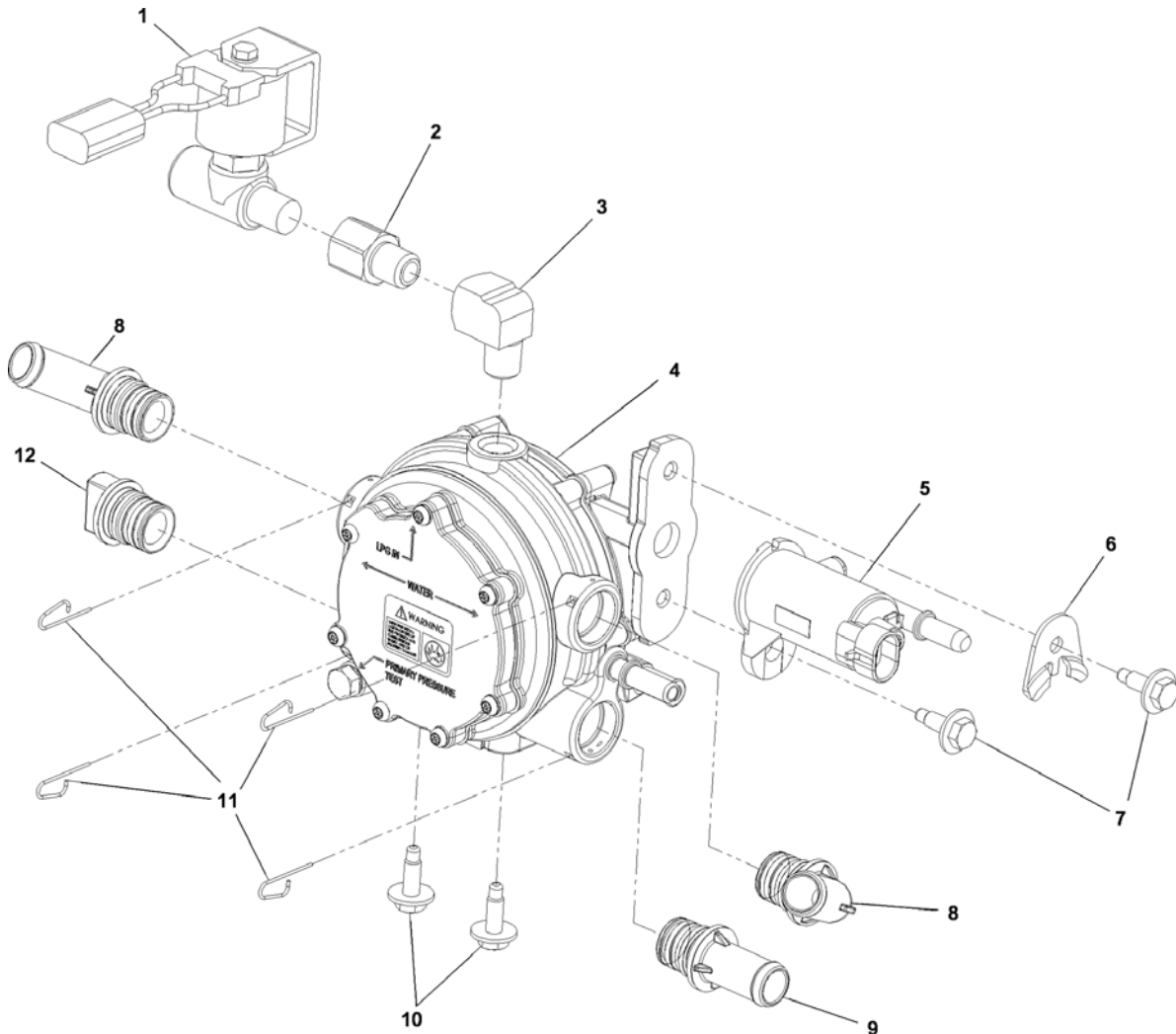
### THROTTLE BODY & MIXER



## THROTTLE BODY &amp; MIXER

Item#	Description	Qty	Part Number
1	Assembly, Mixer FT 60	1	FT60M-30741-52-002
2	Fitting, 90 Degree	1	F4-12
3	Bracket, Throttle Cable	1	<u>B4-30867-001</u>
4	Bolts, Throttle Body to Adapter	2	<u>S1-30871-02-0616</u>
5	Fitting, Brass Vacuum	1	F4-2
6	Screws, Throttle Body to Mixer Retaining	4	S1-30047-001
7	Sensor, Foot Pedal Position (FPP)	1	S8-30237-001
8	Screw, Retaining FPP	2	S1-30295-0416
9	Bolts, Adapter to Manifold	2	S1-34
10	Sensor TMAP	1	S8-30862-001
11	Screws, TMAP Retaining	2	S1-30295-0416
12	Adapter, Throttle Body to Manifold	1	<u>A3-30323-001</u>
13	Shield, Heat	1	<u>G4-30978-001</u>
14	Gasket, Manifold	2	G1-19
15	Bolts, Throttle Body to Adapter	2	<u>S1-30871-02-0616</u>
16	Cap, Vacuum	1	C2-30500-002
17	Valve, FTV	1	<u>V3-30270-277</u>
18	Bolts FTV Retaining	2	<u>S1-30283-0620</u>
19	Assembly, Throttle Body Drive By Cable	1	ATGC-30312-32-25-64
20	Fitting, Mixer Inlet	1	AF4-30614
21	Pin, Fitting Retaining	1	P1-30559
22	O-ring, Throttle Body	2	S3-1524-003
23	Sensor Throttle Position (TPS)	1	S8-30703

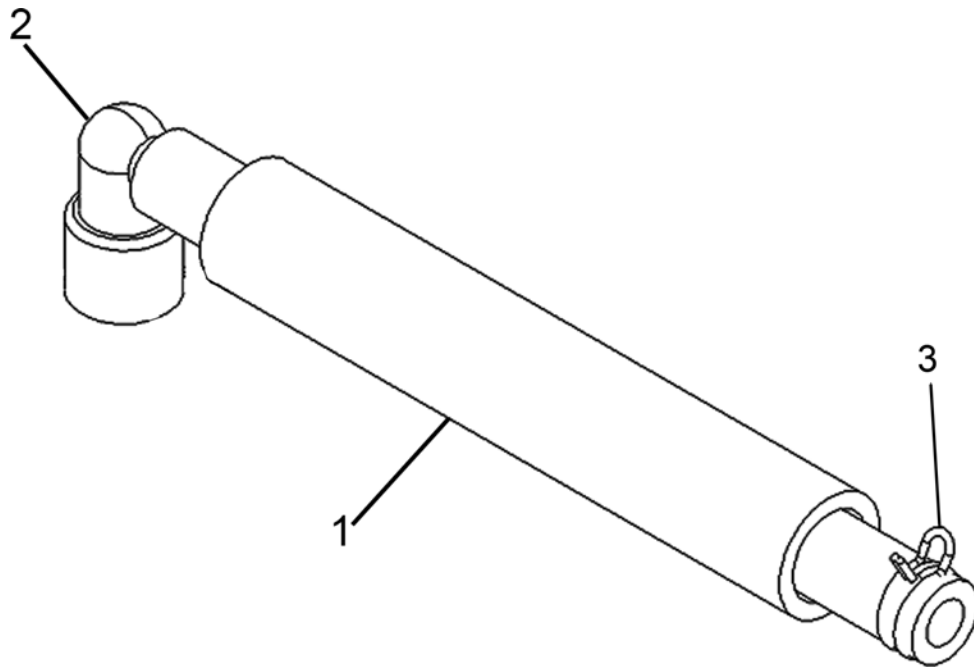
## LPG REGULATOR ASSEMBLY



Item #	Description	Qty	Part Number
1	Assembly Lock Off 12 V	1	ET98-30515-001
2	Fitting Brass Adapter	1	F4-30953-001
3	Fitting 90 Degree Elbow	1	F4-14184-002
4	Assembly Regulator	1	CS4-30772-004
5	Valve, Pressure Trim	1	V3-30272-279
6	Clamp, PTV Retaining	1	C2-30267-001
7	Bolt, PTV Retaining	2	S1-30283-0620
8	Fitting, Coolant	2	AF4-30614
9	Fitting Vapor Outlet	1	AF4-30615
10	Bolts, Mounting	2	S1-30283-0620
11	Pin, Retaining	4	P1-30559
12	Cap, Regulator	1	AF4-30613
13	Jet, Coolant Restrictor	1	J1-30872-047

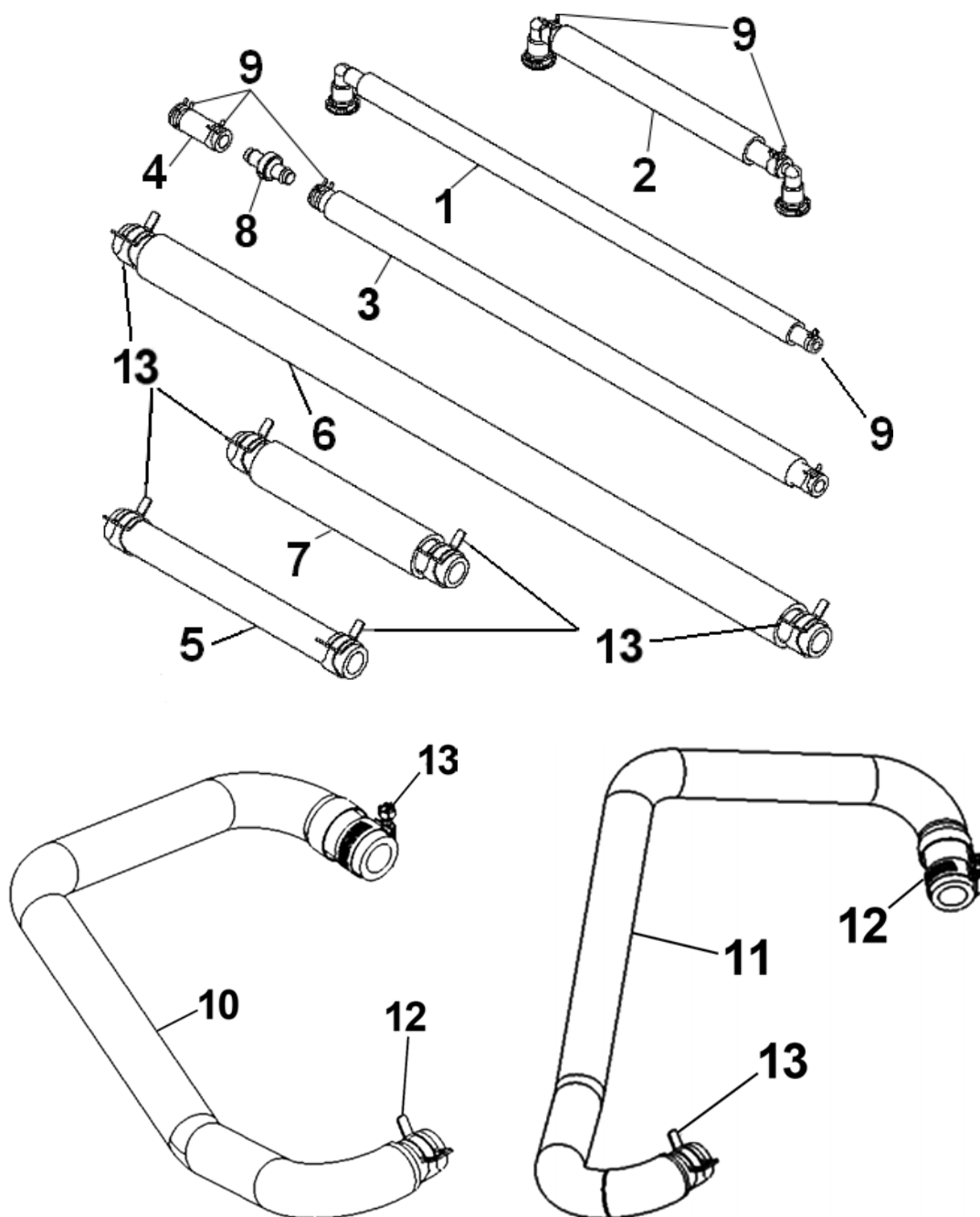
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### PCV HOSE ASSEMBLY



Item #	Description	Qty	Part Number
1	Hose Assembly, PCV	1	<u>AH1-30853-019</u>
2	Valve, PCV	1	<u>6487779</u>
3	Clamp Hose PCV	1	C2-16664-1

**HOSE ASSEMBLIES: COOLANT / VACUUM / FUEL / PCV**

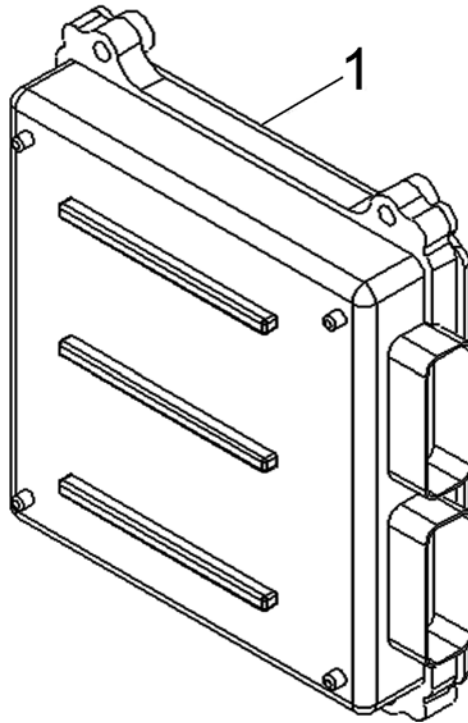


**HOSE ASSEMBLIES: COOLANT / VACUUM / FUEL / PCV (OBSOLETE)**

Item#	Description	Qty	Part Number
1	Assembly, Hose PTV	1	AH1-30852-007
2	Assembly, Hose FTV	1	AH1-30852-001
3	Assembly, Hose Balance line Long	1	AH1-30853-004
4	Assembly, Balance Short	1	AH1-30853-001
5	Assembly, Dry Gas Supply	1	AH1-30853-017
6	Assembly, Hose Coolant 750MM	1	NSS
7	Assembly, Hose Coolant 450 MM	1	AH1-30853-008
8	Valve check Balance Line	1	V3-30958
9	Clamp, hose	2	C2-16664-1
10	Ass'y Hose LPR Return Molded	1	AH1-30884-001
11	Ass'y, Hose LPG Supply Molded	1	AH1-30885-001
12	Clamp, Hose Worm	1	C2-14106-006
13	Clamp, Hose Pinch	1	C2-16664-2

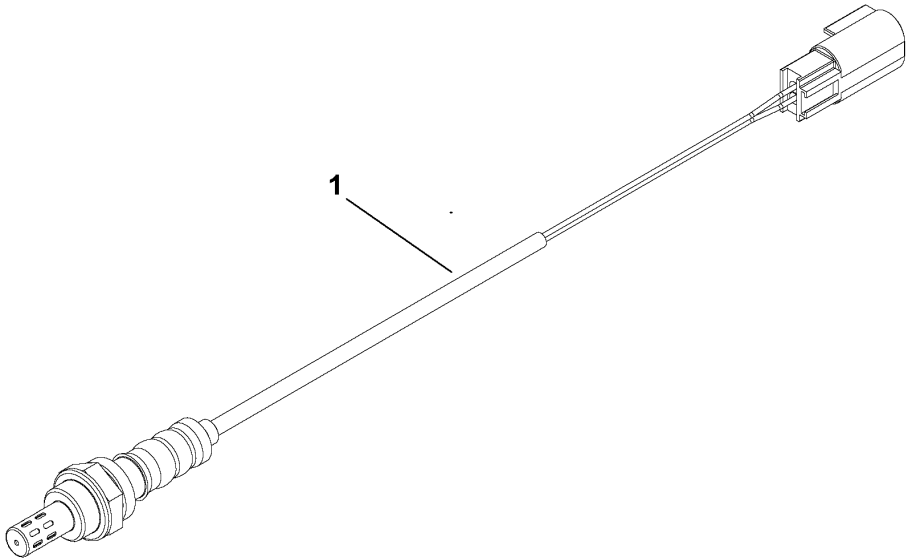


### ENGINE CONTROL MODULE (OBSOLETE)

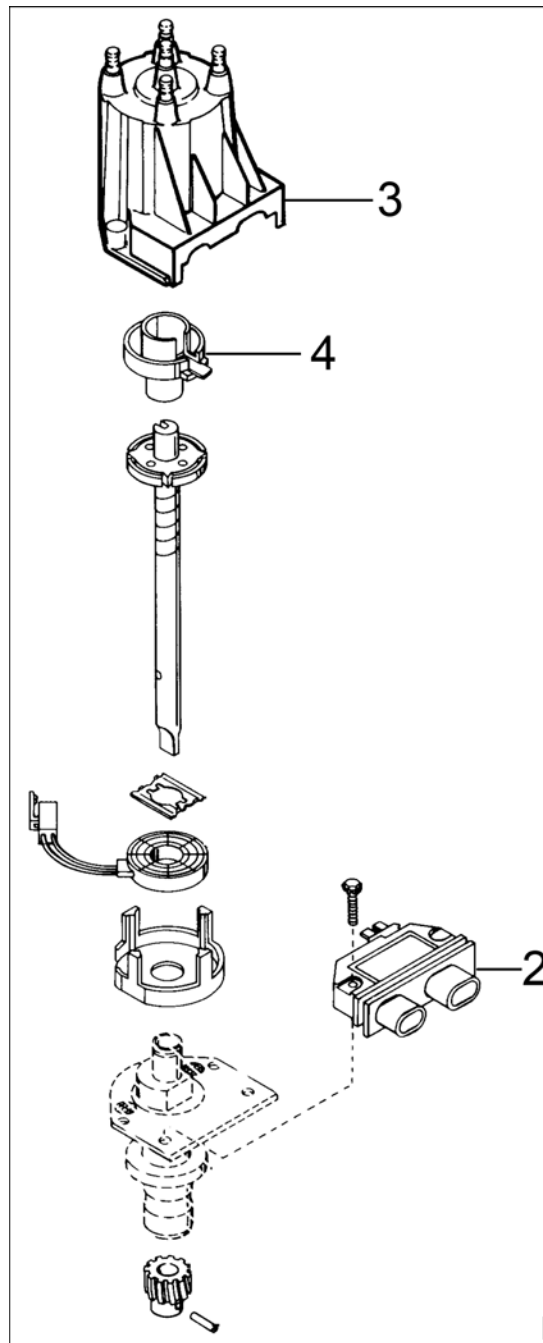


Item#	Description	Qty	Part Number
1	Tennant	1	0424951
	Tailift		0528701
	NMHG/NACCO/Hyster/Yale Cush Truck 580048986, 8525227		0528801
	NMHG/NACCO/Hyster/Yale 2076083		0528802
	NMHG/NACCO/Hyster/Yale 2067796 Cush Truck		0529801
	NMHG/NACCO/Hyster/Yale Cush 2076149; Pneumatic 2076083		0529802

**HEATED EXHAUST GAS OXYGEN SENSOR (OBSOLETE)**



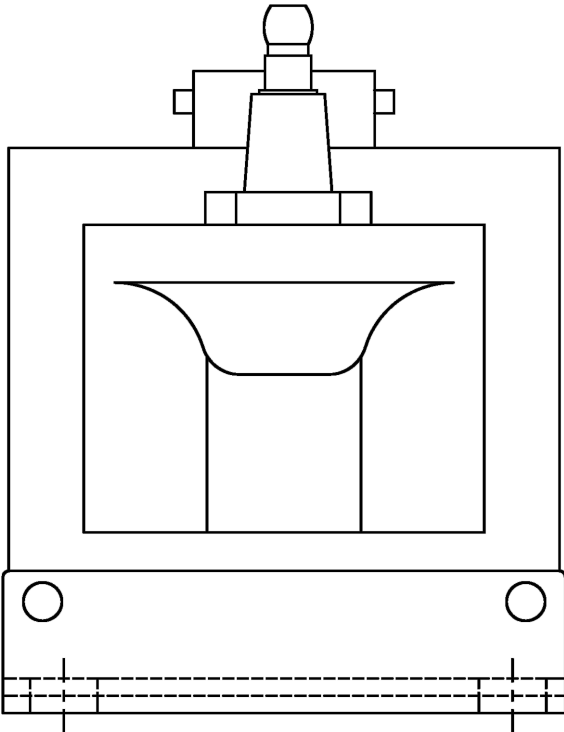
Item#	Description	Qty	GM Part Number
1	Sensor, Heated Exhaust Gas Oxygen	1	12559850

**DISTRIBUTOR (OBSOLETE)**

Item#	Description	Qty	GM Part Number
1	Distributor Ass'y (Complete)	1	1103782
2	Module, Ignition Coil	1	10483099
3	Cap Distributor	1	10476237
4	Rotor, Distributor	1	10467546

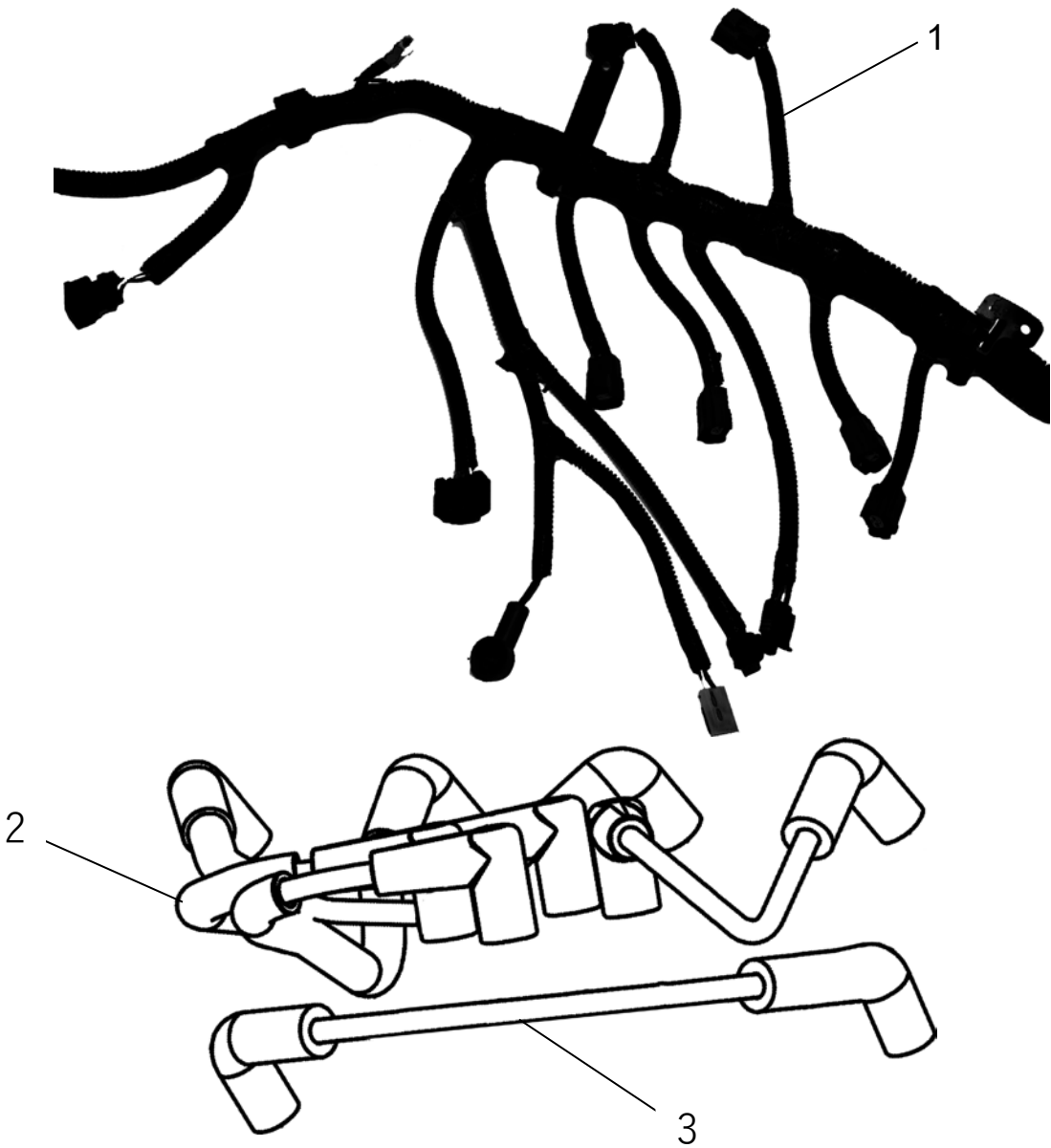
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

**IGNITION COIL (OBSOLETE)**



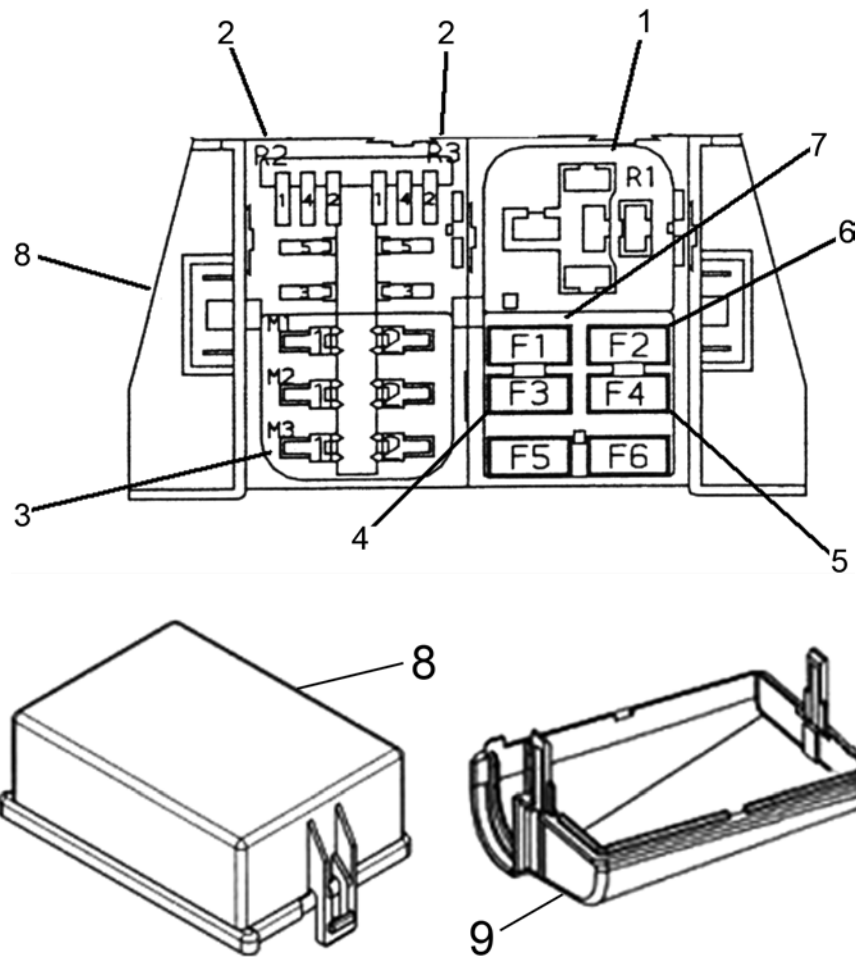
Item#	Description	Qty	GM Part Number
1	Ignition Coil	1	01115491

WIRE HARNESS ENGINE ELECTRICAL



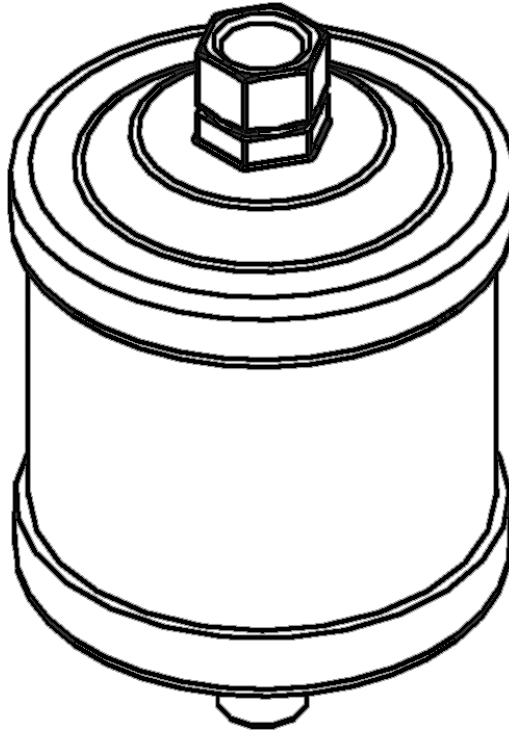
Item #	Description	Qty	Part Number	GM Part Number
1	Harness, Engine Electrical	1	E1350020	
Not Shown	Harness, LPG Jumper Harness	1	E1478100	
2	Spark Plug Wire Set (Without Ignition Coil Wire)	1		93430078
3	Ignition Coil Wire	1		93430079

### FUSE BOX (OBSOLETE)



Item #	Description	Qty	Part #
1	Relay, Starter 40/30 A	1	7381290
2	Relay, Power & Fuel Pump	2	885014
3	Fuse, Maxi 50 A	1	7381280
4	Fuse, 15 A	1	7381220
5	Fuse, 15 A	1	7381220
6	Fuse, 5 A	1	7380660
7	Fuse 20 A	1	7381270
8	Fuse Box Cover (Top) w/o Label	1	E-6131
9	Fuse Box Cover (Bottom)	1	E-6132
Not Shown	Label GM Engines	1	7060720

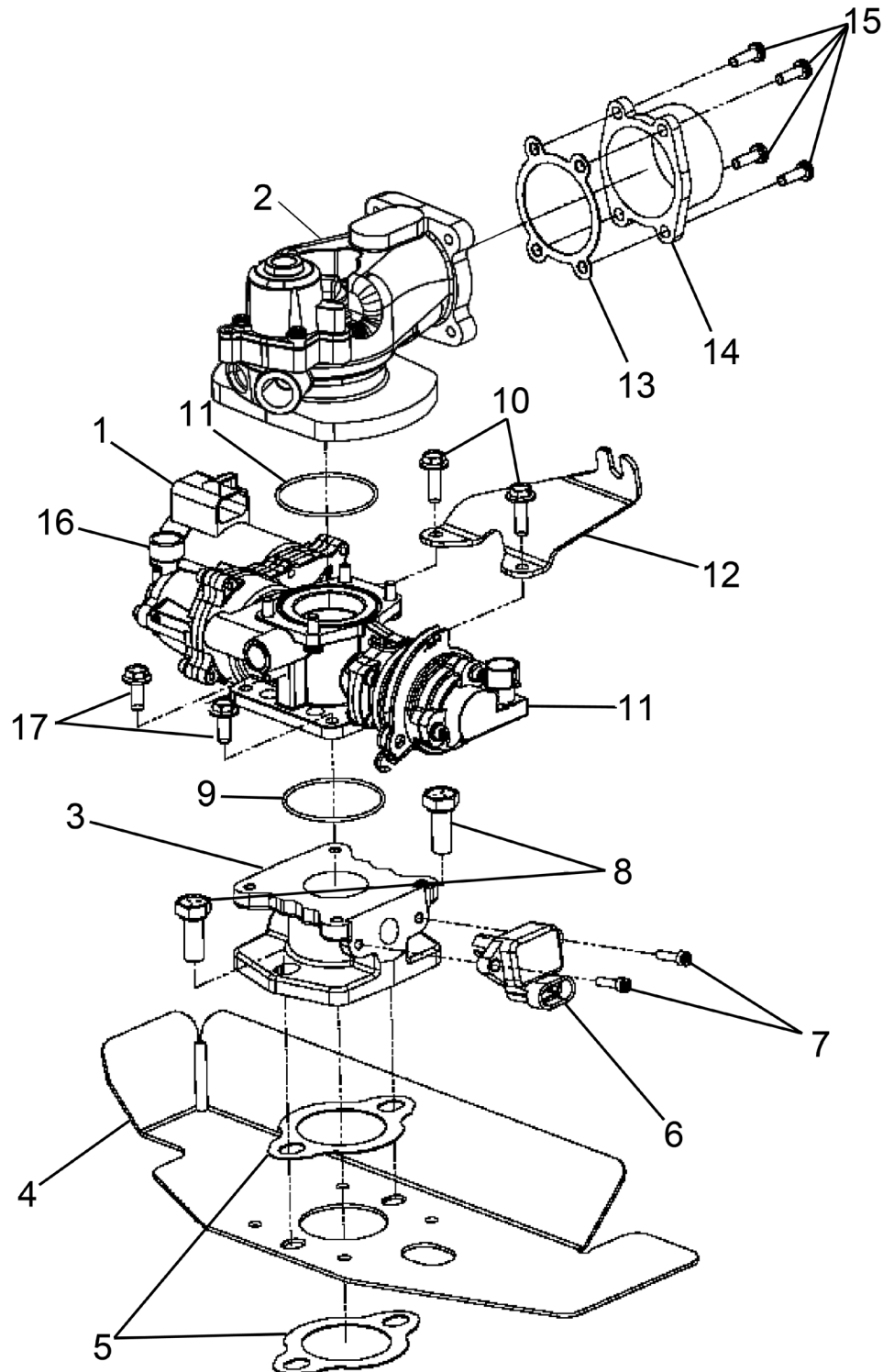
## FUEL FILTER ASSEMBLY



Item #	Description	Qty	Part Number
1	Filter, LPG Assembly	1	F1-30869-001

## 3.0L Gasoline Lift Trucks

### THROTTLE BODY



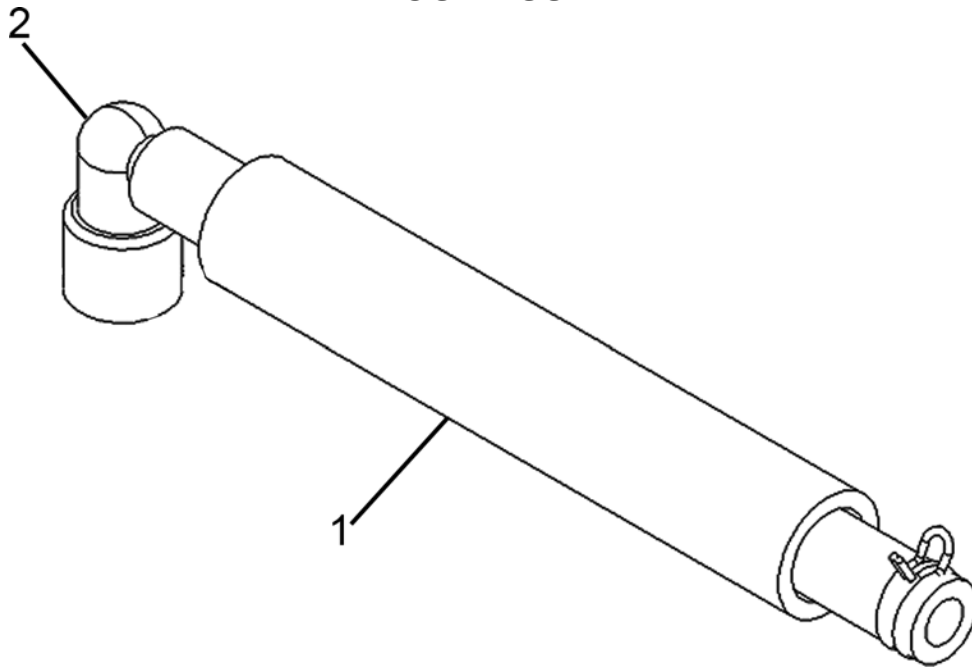
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



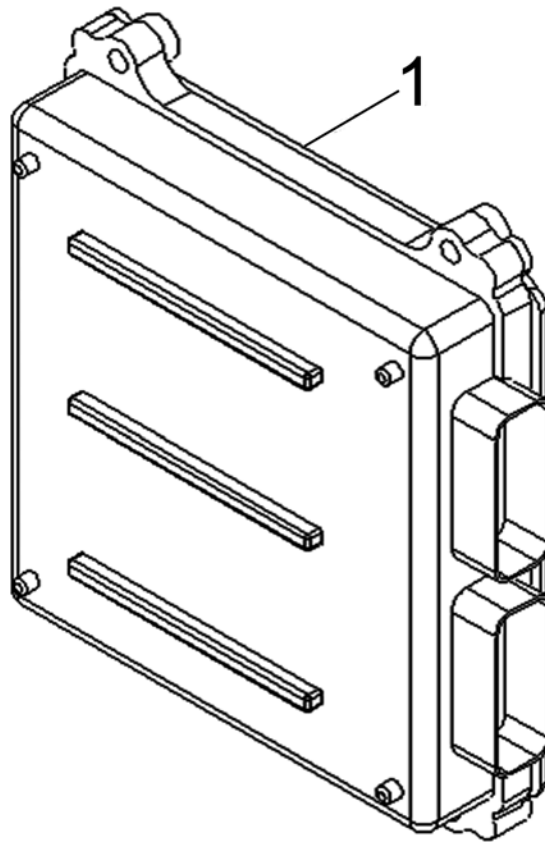
## THROTTLE BODY

Item#	Description	Qty	Part Number
1	Assembly Throttle Body Injector assembly with DBC throttle control complete	1	ATGN-30312-32-25-64
2	Assembly, TBI Assembly	1	(E1422003) w/o Sensor Mtg
3	Adapter, Throttle Control assembly to Manifold	1	A3-30323-001
4	Shield, Heat	1	G4-30978-001
5	Gasket, 2 Bolt Manifold	2	G1-19
6	Assembly, TMAP	1	S8-30862-001
7	Screws, TMAP retaining	2	S1-30295-0416
8	Bolts Retaining, Throttle Assembly to Manifold	2	S1-34
9	O-ring, Throttle Control seals	2	S3-1524-003
10	Bolts Retaining, Throttle Control Assembly to Adapter	2	S1-30871-02-0620
11	Sensor, Foot Pedal Position FPP	1	S8-30237-001
12	Bracket, Throttle Cable	1	B4-30867-001
13	Gasket, Air Inlet to TBI Adapter	1	G1-11
14	Inlet, Air	1	A3-29-1
15	Screws Retaining, Air Inlet to Adapter	4	S1-30047-001
16	Sensor Throttle position (TPS)	1	S8-30703
17	Bolts Retaining, Throttle Control Assembly to Adapter	2	S1-30871-02-0616

### PCV HOSE ASSEMBLY

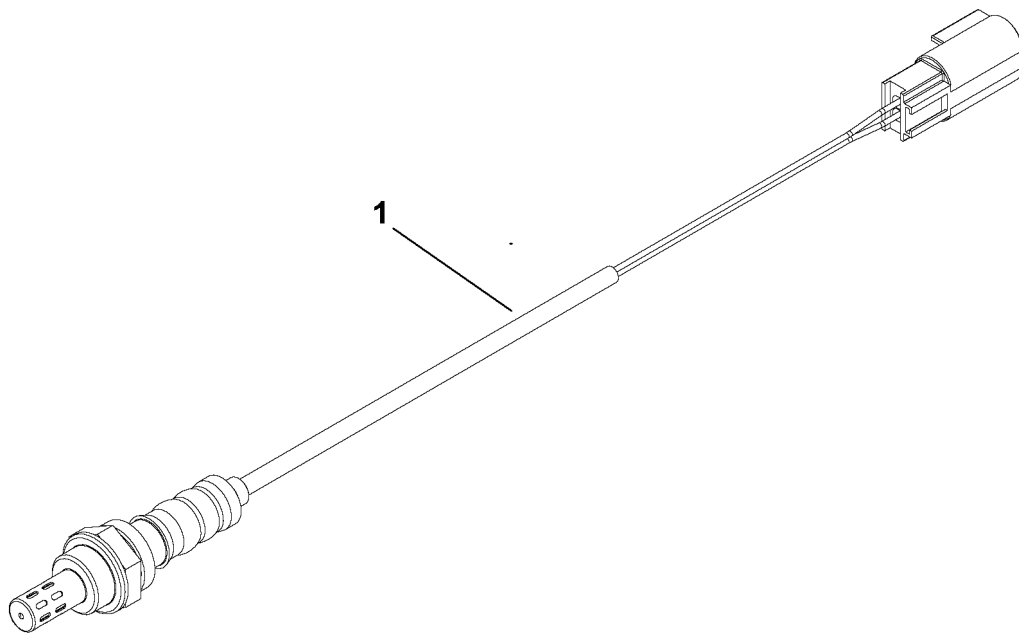


Item #	Description	Qty	Part Number	GM Part Number
1	Hose Assembly, PCV	1	AH1-30853-019	
2	Valve, PCV	1		6487779

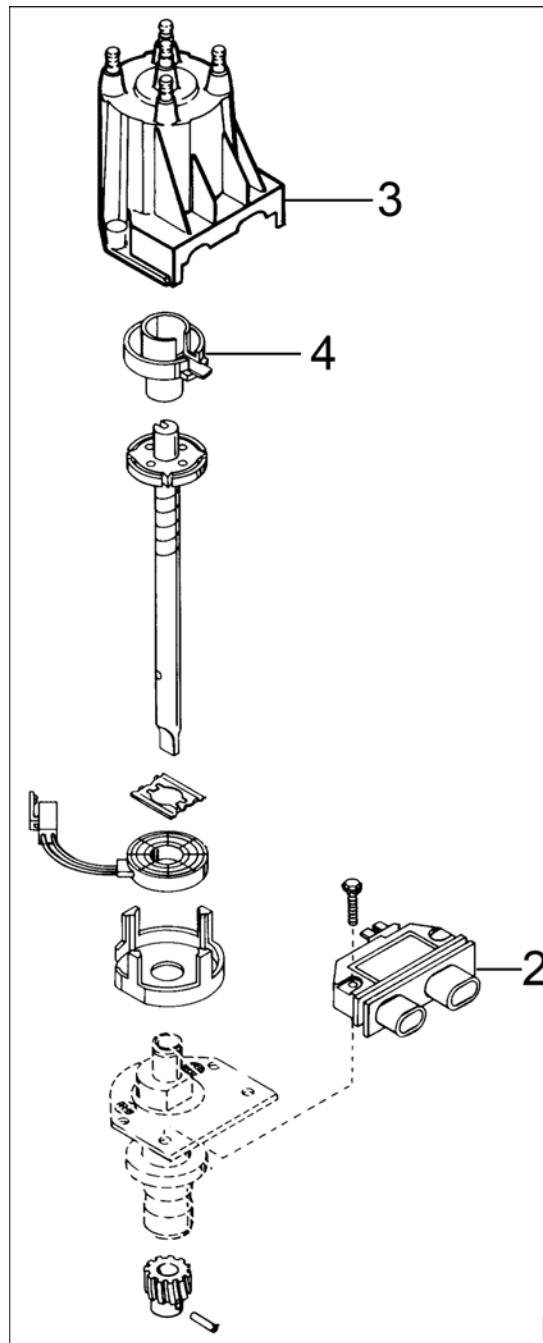
**ENGINE CONTROL MODULE**

Item#	Description	Qty	Part Number
1	Tennant	1	0424951
	Tailift		0528701
	NMHG/NACCO/Hyster/Yale Cush Truck 580048986, 8525227		0528801
	NMHG/NACCO/Hyster/Yale 2076083		0528802
	NMHG/NACCO/Hyster/Yale 2067796 Cush Truck		0529801
	NMHG/NACCO/Hyster/Yale Cush 2076149; Pneumatic 2076083		0529802

**HEATED EXHAUST GAS OXYGEN SENSOR**

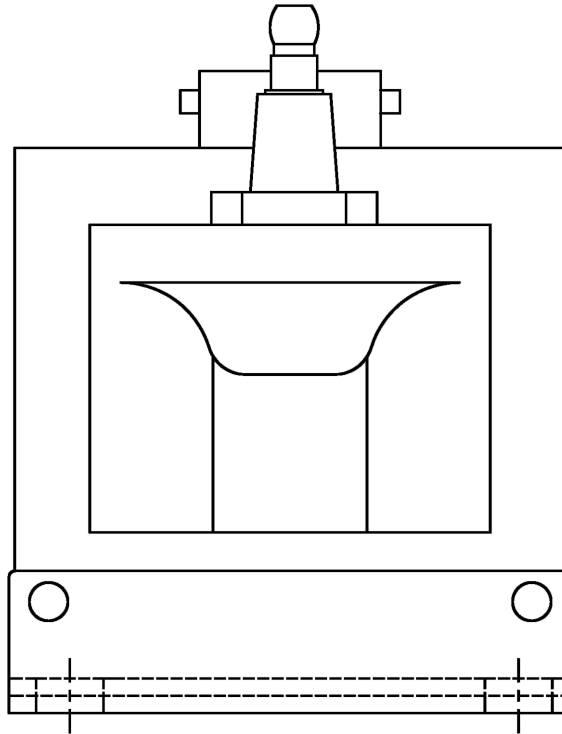


Item#	Description	Qty	GM Part Number
1	Sensor, Heated Exhaust Gas Oxygen	1	12559850

**DISTRIBUTOR**

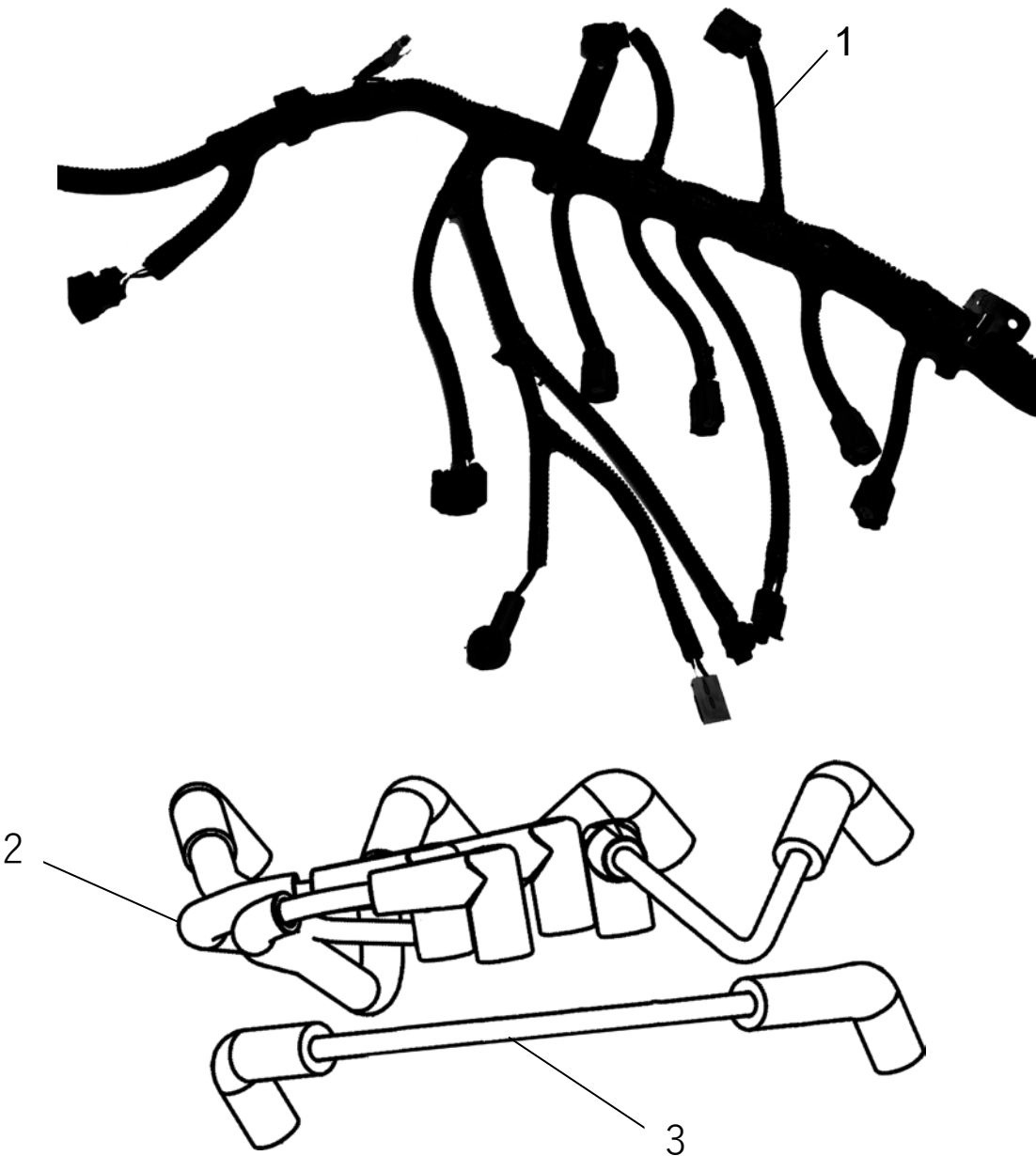
Item#	Description	Qty	GM Part Number
1	Distributor Ass'y (Complete)	1	1103782
2	Module, Ignition Coil	1	10483099
3	Cap Distributor	1	10476237
4	Rotor, Distributor	1	10467546

## IGNITION COIL



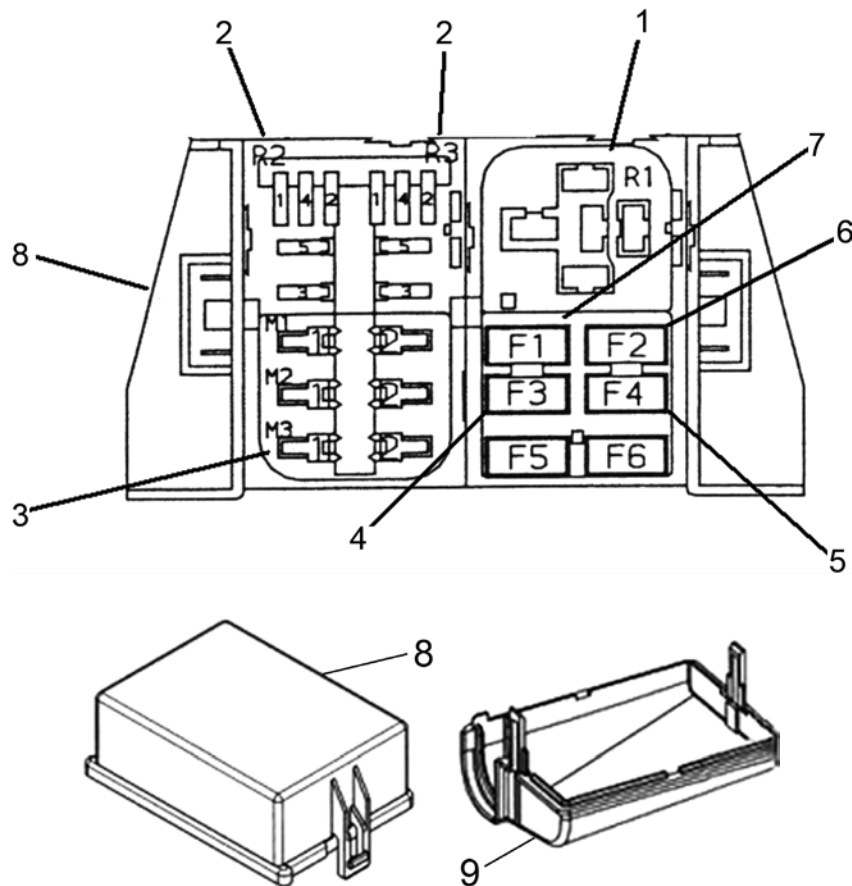
Item#	Description	Qty	GM Part Number
1	Ignition Coil	1	01115491

### WIRE HARNESS ENGINE ELECTRICAL



Item #	Description	Qty	Part Number	GM Part Number
1	Harness, Engine Electrical	1	E1350020	
Not Shown	Harness, Gas Injector Jumper	1	E1477100	
2	Spark Plug Wire Set (Without Ignition Coil Wire)	1		93430078
3	Ignition Coil Wire	1		93430079

### FUSE BOX

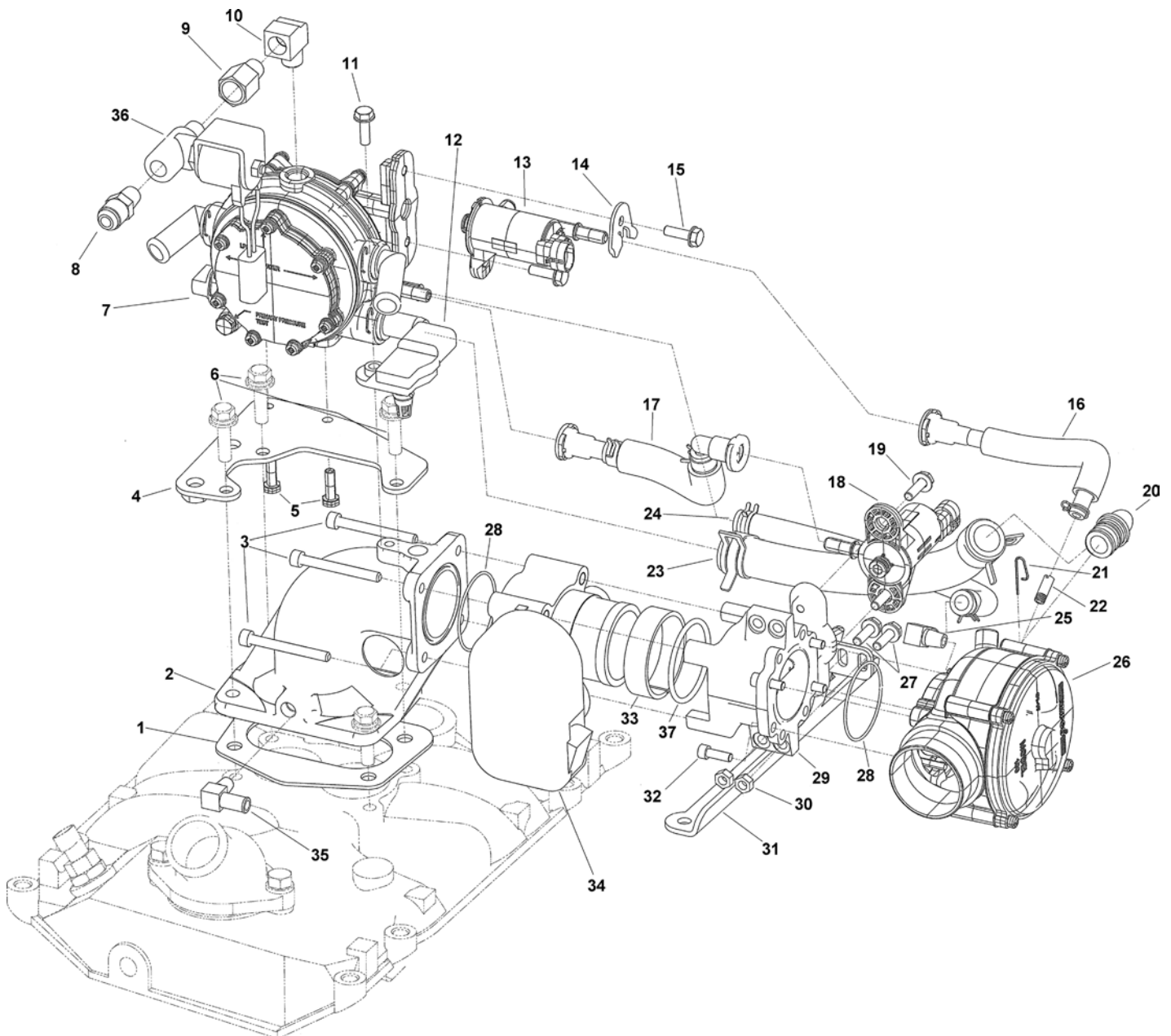


Item #	Description	Qty	Part #
1	Relay, Starter 40/30 A	1	7381290
2	Relay, Power & Fuel Pump	2	885014
3	Fuse, Maxi 50 A	1	7381280
4	Fuse, 15 A	1	7381220
5	Fuse, 15 A	1	7381220
6	Fuse, 5 A	1	7380660
7	Fuse 20 A	1	7381270
8	Fuse Box Cover (Top) w/o Label	1	E-6131
9	Fuse Box Cover (Bottom)	1	E-6132
Not Shown	Label GM Engines	1	7060720



### 4.3L LPG Lift Trucks

#### DBW LPG MIXER AND THROTTLE BODY ASSEMBLY



## 4.3L LPG Lift Trucks

Spectrum Series II



### DBW LPG MIXER AND THROTTLE BODY ASSEMBLY

Item #	Description	Qty	Part Number	GM Part Number
1	Gasket Manifold to Adapter	1	G1-25667	
2	Adapter, Elbow, intake	1	A3-30946-001	
3	Bolt, Adapter to ETC	4	S1-30295-0655	
4	Bracket, LPR to Eng	1	B4-30947-001	
5	Bolt, LPR to Bracket	2	S1-30283-0620	
6	Bolt, Adapt to Manifold	4	90205125	
7	Regulator, Low Pressure	1	CS4-30772-004	
8	Fitting, Fuel inlet to LPL	1	F4-14220	
9	Adapter, Fitting LPL	1	F4-30953-001	
10	Fitting, Elbow LPL to LPR	1	F4-14184-002	
11	Bolt, TMAP	1	S1-30047-001	
12	Sensor, TMAP	1	E1466001	
13	Valve, Pressure Trim	1	V3-30272-279	
14	Clip, PTV retainer	1	C2-30267-001	
15	Bolt. PTV retaining	2	S1-30283-0620	
16	Hose, Ass PTV Vac	1	AH1-30852-008	
17	Hose, Ass FTV Fuel Inlet	1	AH1-30852-003	
18	Valve, Fuel Trim	1	V3-30270-277	
19	Bolt, FTV Retaining	2	S1-30283-0620	
20	Fitting Fuel Inlet Mixer	1	AF4-30615	
21	Pin Retaining Ftg In Mix	1	P1-30559	
22	Fitting, Vac PTV Hose Ass'y	1	F4-2	
23	Hose, Vapor Inlet Mix	1	AH1-30853-014	
24	Hose, Bal. Line	1	AH1-30853-001	
25	Fitting, Bal. Line Mix	1	F4-12	
26	Mixer, Ass'y	1	FT100M-30828-52-001	
27	Bolt, FTV Brake Mount	2	S1-30871-02-0620	
28	O-ring, Intake Seals	2	S3-1524-003	
29	Adapter, FTV inlet	1	AA3-30952-001	
30	Nut, FTV Mnt Bolt	2	5N-001	
31	Support, FTV Mnt Adapter	1	B4-30980-001	
32	Screw, FTV Adapter to Mix	4	S1-31083-1224-075	
33	Collar, Seal ETC Inlet	1	S6-30976-001	
34	Electronic Throttle Control	1	E1312100	
35	Fitting, Adapter	1	401-02	
36	Lock Off Electric, LPG	1	ET98-30515-001	
37	O-Ring,	1	S3-1524-004	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## 4.3L LPG Lift Trucks

Spectrum Series II

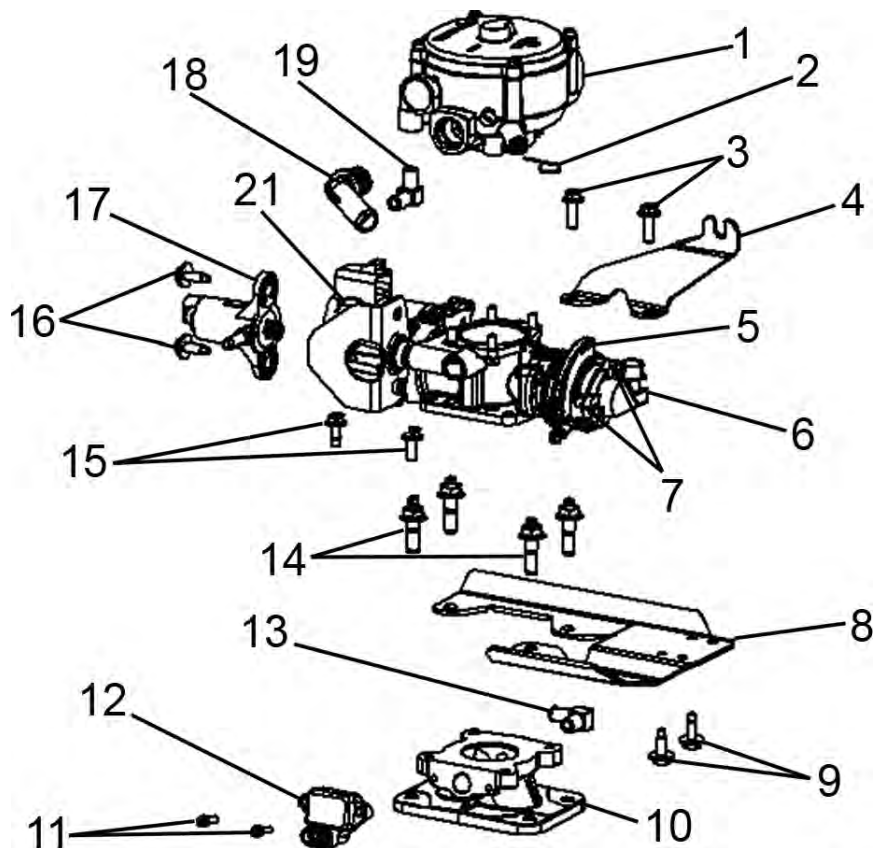


### DBW LPG MIXER AND THROTTLE BODY ASSEMBLY

Item #	Description	Qty	Part Number	GM Part Number
Not Shown	Hose Ass'y, Coolant	1	AH1-30853-008	
Not Shown	Fitting, ½ Nptx5/8 hose	1	7171440	
Not Shown	Bolt, M8-1.25x20 mm	3	98333020	
Not Shown	Washer, Lock M8	3	93930000	
Not Shown	Fuel Line LPG	1	7176420	
Not Shown	Retainer Coolant Sensor Wire	1		12052037
Not Shown	Bolt Fuel Line	1		9440034
Not Shown	Washer, lock Fuel Line	1	93300000	
Not Shown	Nut, FTV Brkt to Eng	2	95200000	
Not Shown	Washer, lock 5/16	6	93200000	
Not Shown	Washer Lock 5/16	4	92200000	
Not Shown	Clamp, Blc Hos	1		2024136

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## DBC LPG MIXER AND THROTTLE BODY ASSEMBLY



## 4.3L LPG Lift Trucks

Spectrum Series II

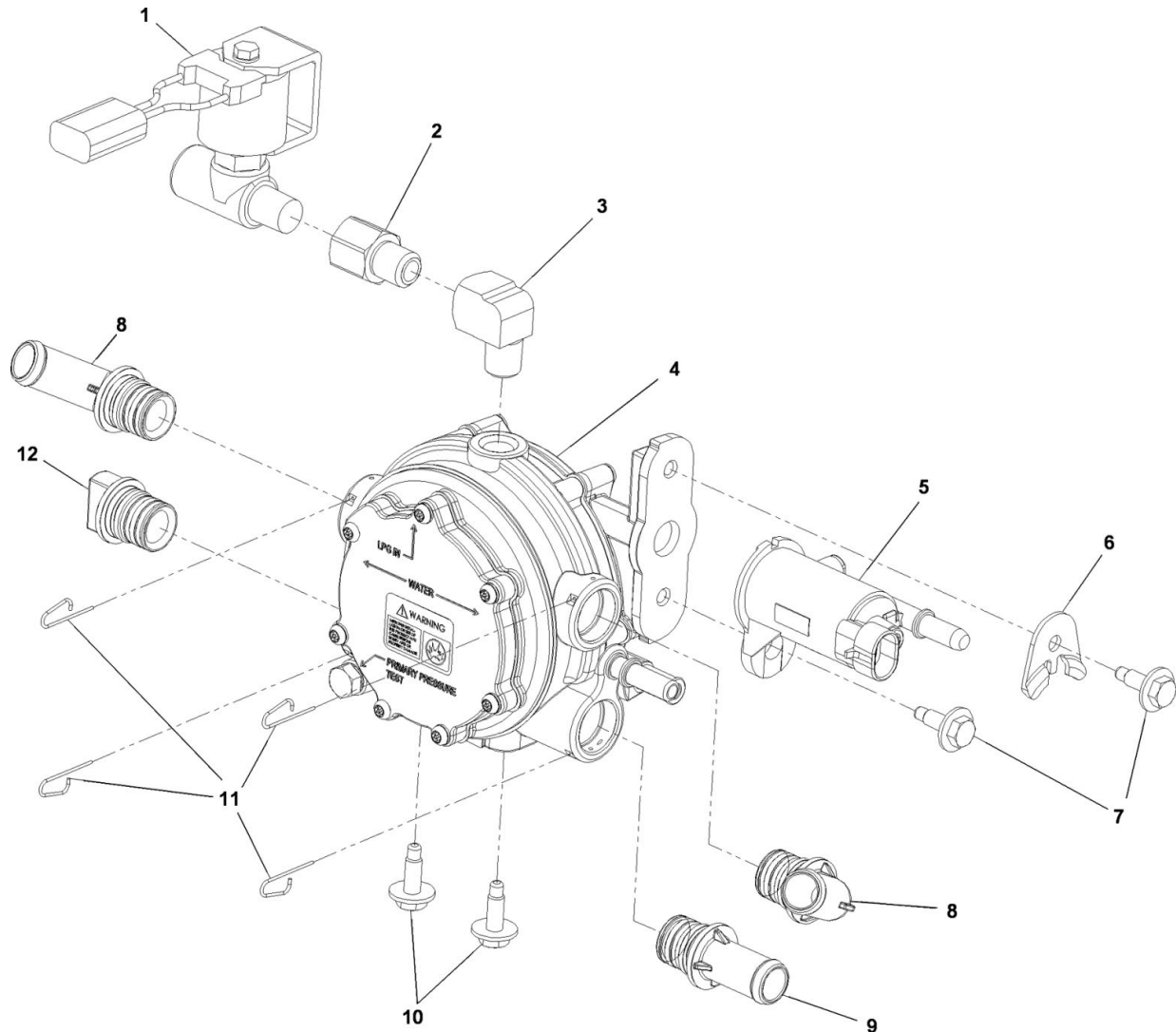


### DBC LPG MIXER AND THROTTLE BODY ASSEMBLY

Item #	Description	Qty	Part Number
1	Mixer, FT100M	1	FT100M-30828-52-001
2	Pin, Retaining fitting	1	P1-30559
3	Bolt, Retaining Throttle Body to Mixer	2	S1-30871-02-0620
4	Bracket, Throttle cable	1	B4-30867-001
5	Assembly Throttle Body DBC	1	ATGC-30312-38-25-64
6	Sensor Foot Pedal Position (FPP)	1	S8-30237-001
7	Screw, FPP Retaining	2	S1-30295-0416
8	Bracket, Regulator Mounting	1	NSS
9	Bolts, Regulator Mounting	2	S1-30283-0620
10	Adapter, Manifold to Throttle Body	1	A3-30238-001
11	Screws, TMAP Retaining	2	S1-30295-0416
12	Sensor, TMAP	1	S8-30862-001
13	Fitting, 90 Degree Elbow	1	F4-12
14	Bolts Throttle Body To Adapter	4	S3-30873-31-150
15	Bolts. Throttle Body to Adapter Short	2	S1-30871-02-0620
16	Bolts, FTV Retaining	2	S1-30283-0620
17	Valve , Fuel Trim FTV	1	V3-30270-277
18	Fitting, Fuel Inlet to Mixer	1	AF4-30614
19	O-Ring, Throttle Body Seal	2	S3-1524-003
20	Gasket Manifold to Adapter	1	G1-25667
21	Sensor, Throttle Position (TPS)	1	S8-30703

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

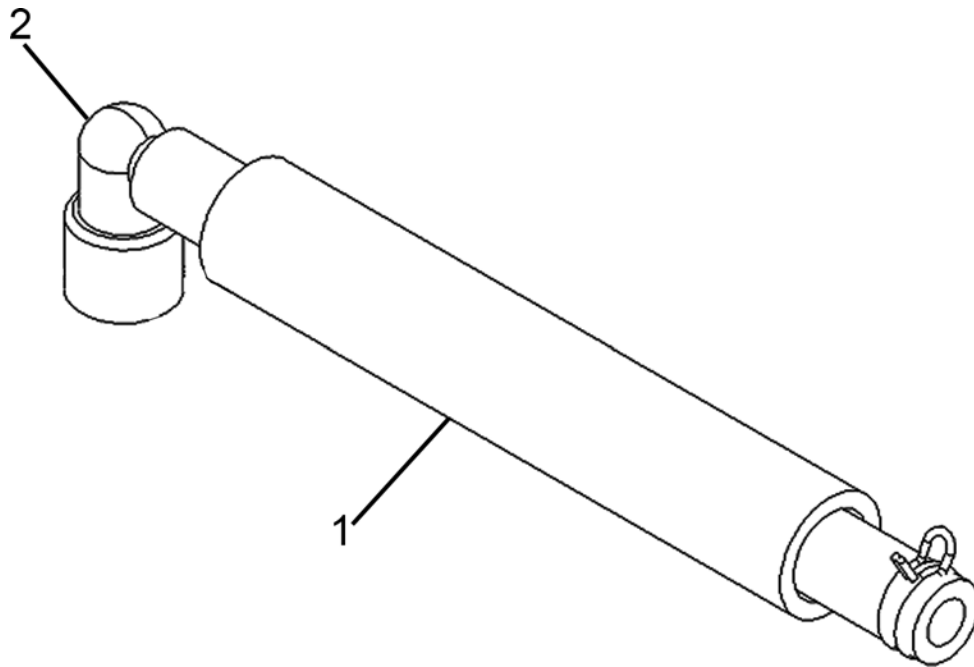
## LPG REGULATOR ASSEMBLY



Item #	Description	Qty	Part Number
1	Assembly Lock Off 12 V	1	ET98-50362-001
2	Fitting Brass Adapter	1	F4-30953-001
3	Fitting 90 Degree Elbow	1	F4-14184-002
4	Assembly Regulator	1	CS4-30772-004
5	Valve, Pressure Trim	1	V3-30272-279
6	Clamp, PTV Retaining	1	C2-30267-001
7	Bolt, PTV Retaining	2	S1-30283-0620
8	Fitting, Coolant	2	AF4-30614
9	Fitting Vapor Outlet	1	AF4-30615
10	Bolts, Mounting	2	S1-30283-0620
11	Pin, Retaining	4	P1-30559
12	Cap, Regulator	1	AF4-30613

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### PCV HOSE ASSEMBLY



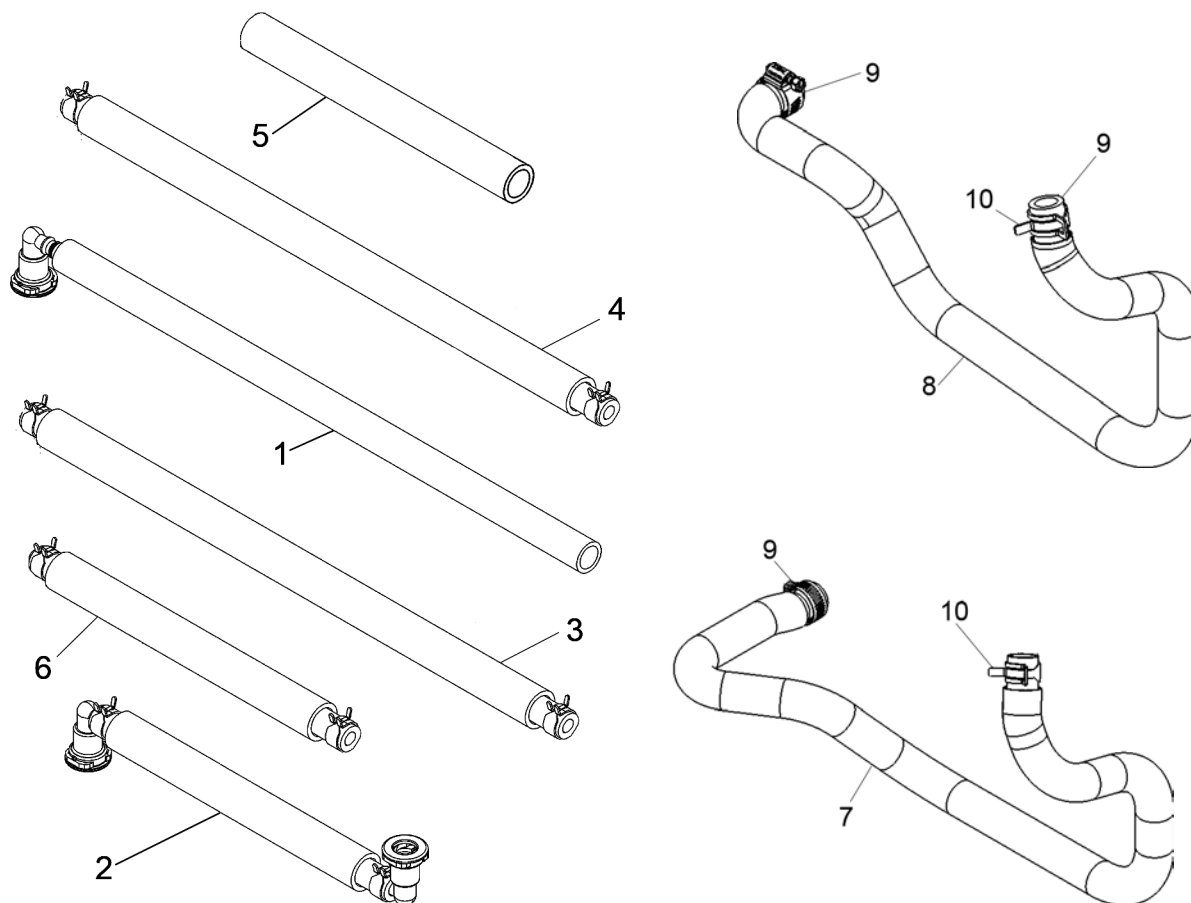
Item #	Description	Qty	Part Number	GM Part Number
1	Assembly, Hose PCV (Includes hoses & Clamps)	1	AH1-30853-020	
2	Valve, PCV	1		6487779

## 4.3L LPG Lift Trucks

Spectrum Series II



### HOSE ASSEMBLIES COOLANT/VACUUM /FUEL/PCV

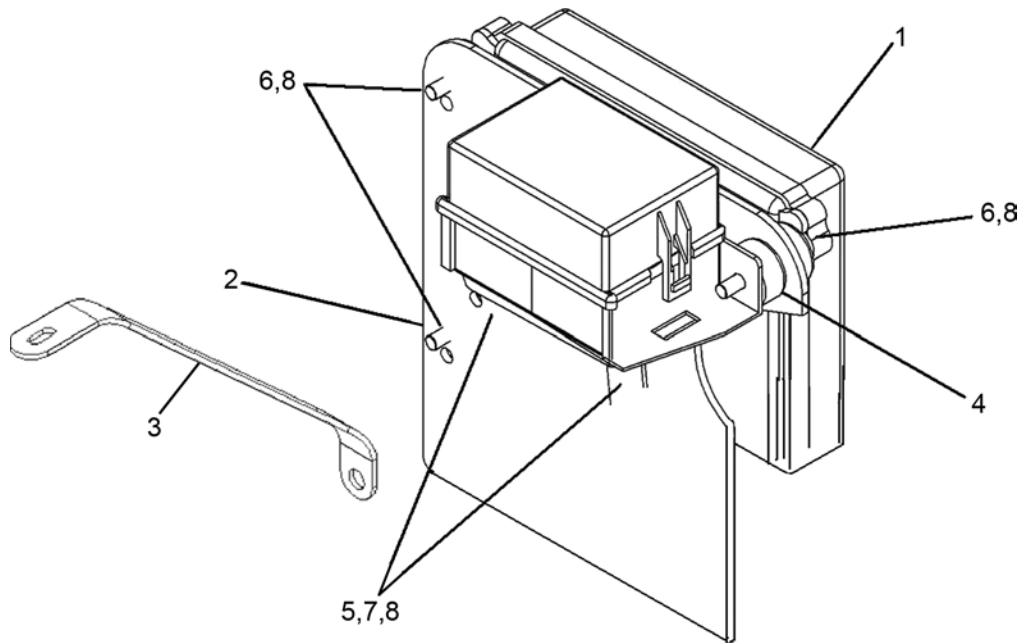


Item #	Description	Qty	Part Number
1	Assembly, Hose PTV	1	AH1-30852-006
2	Assembly, Hose FTV	1	AH1-30852-002
3	Assembly, Hose Coolant 845MM	1	AH1-30853-002
4	Assembly, Balance	1	AH1-30853-001
5	Assembly, Dry Gas Supply	1	AH1-30853-017
6	Assembly, Hose Coolant 245 MM	1	AH1-30853-003
7	Ass'y, Hose LPR Return Molded	1	AH1-30891-001
8	Ass'y, Hose LPR Return	1	AH1-30890-001
9	Clamp, Hose Worm	1	C2-14106-006
10	Clamp, Hose Pinch	1	C2-16664-2

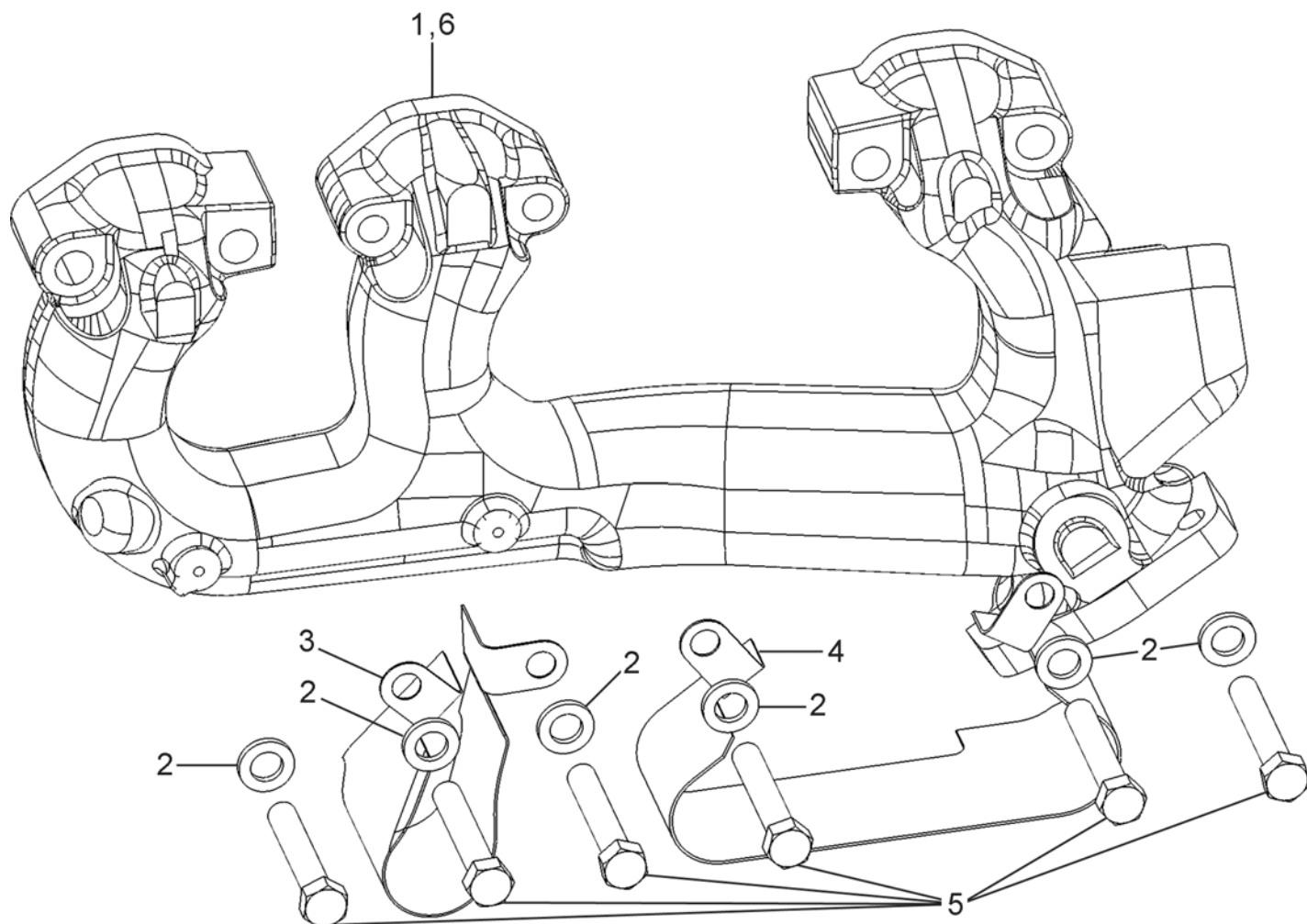
Note: Where applicable, any product underlined and in **red text** is obsolete. Visit page 6 for support.



### ENGINE CONTROL UNIT

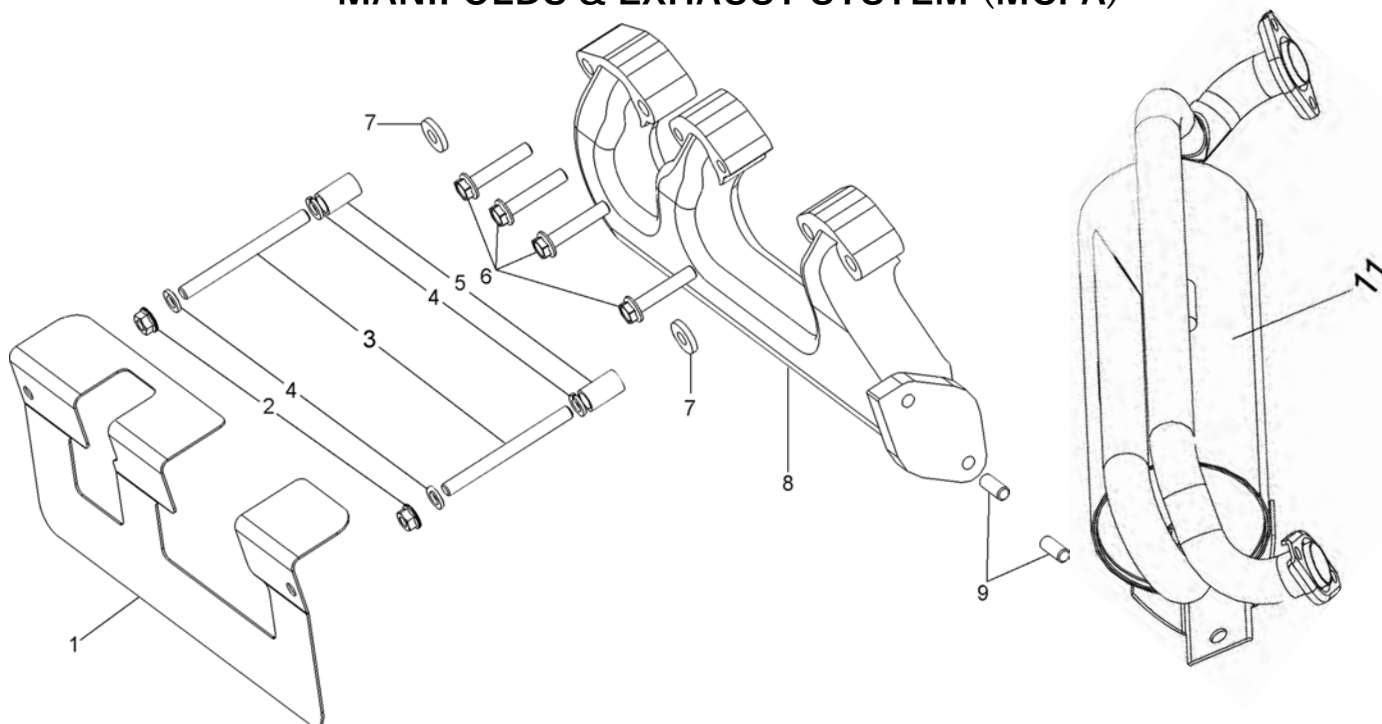


Item #	Description	Qty	Part Number	GM Part Number
1	NMHG/NACCO/Hyster/Yale	1	0922701	
	NMHG/NACCO/Hyster/Yale		0925701	
	MCFA		1026651	
2	Bracket, ECU Mounting	1	7370810	
3	Bracket Support ECU	1	NSS	
4	Isolator, Relay Box	6	7245290	
5	Bolt, ECU Brkt Mnt Short	2	90124050	
6	Bolt, ECU Brkt Mnt Long	4	90125050	
7	Nut, ECU Brkt Mnt	2	95100000	
8	Washer Lock ECU Brkt (1/4)	7	93100000	
Not Shown	Washer Lock ECU Brkt (3/8)	2	93000000	
Not Shown	Washer ECU Grnd	1	93300200	
Not Shown	Bolt ECU Brkt Mnt 3/8	3		9440034

**EXHAUST MANIFOLD**

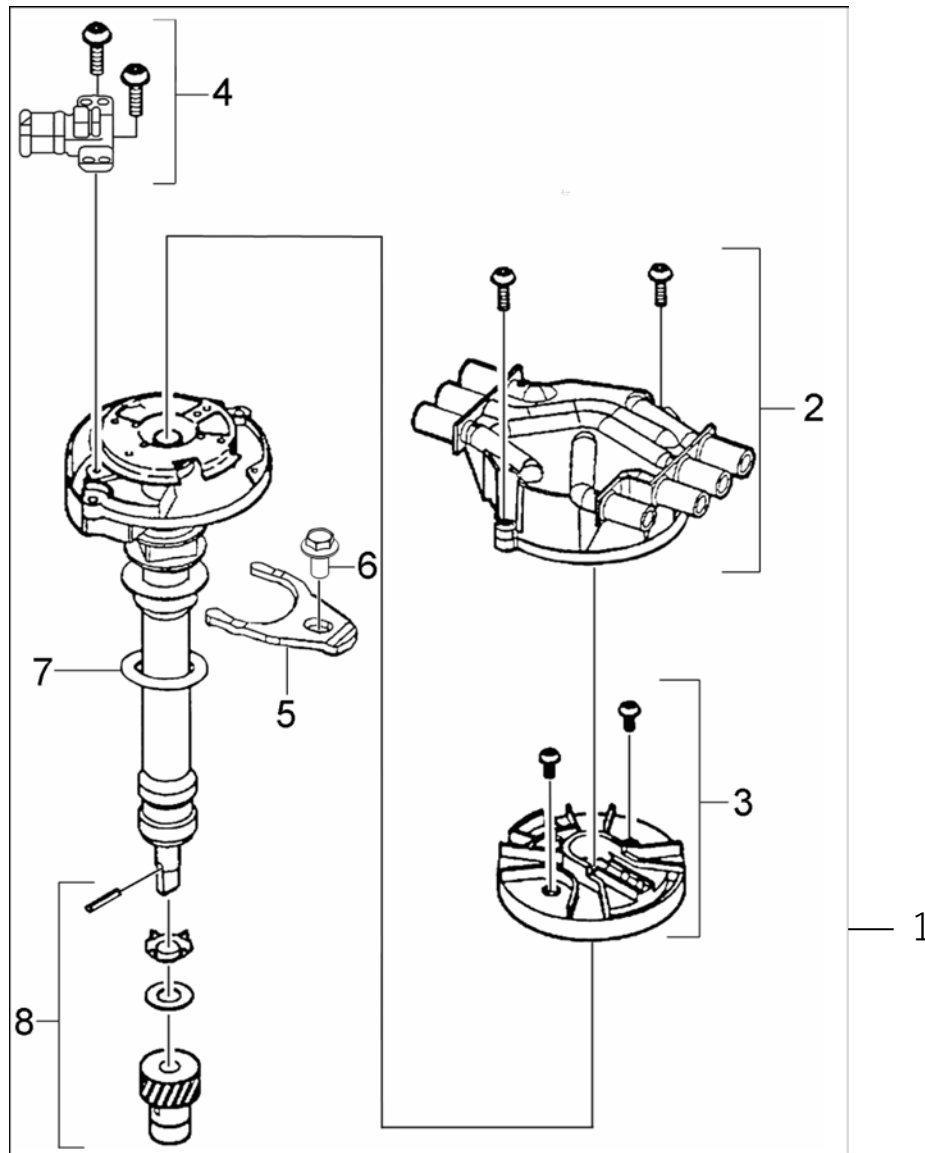
Item #	Description	Qty	Part Number	GM Part Number
1	Exhaust Manifold, RH	1		12552325
2	Washer, Exhaust Manifold	12	W1-50595-037	
3	Shield, Spark Plug	2		10105861
4	Shield, Spark Plug Double	2		12551505
5	Bolt, 3/8" 16 x 2 1/4" Hex Gr 5	12	90305225	
6	Exhaust Manifold, LH	1		12550172

### MANIFOLDS & EXHAUST SYSTEM (MCFA)



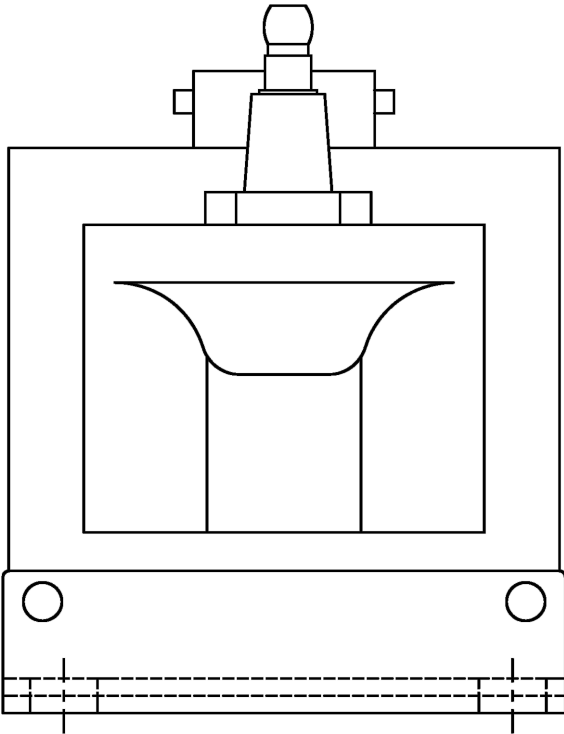
Item #	Description	Qty	Part Number	GM Part Number
1	Shield, Exhaust Manifold	2	7152020	
2	Nut, Hex, 3/16-16	4		7152030
3	Stud, Exhaust 3/8" x 16 x 4-14"	4	7152050	
4	Washer, Lock 3/8"	8	93300000	
5	Spacer, 16mm OD x 32mm LG MCFA	4	7151980	
6	Bolt, 3/8"-16-2" hex, flange Gr8	8	90328200	
7	Washer, Flat 3/8" ID 3/16" thick	4		9414034
8	Manifold, Exhaust, RH	1	7152040	
	Manifold, Exhaust, LH	1	7152030	
9	Stud, Exhaust M10-1.25 x 25mm	4	7151990	
10	Stud, Exhaust 3/8" x 16 x 4-14"	4	7152050	
11	Catalyst, Three Way, MCFA DBW	1	7332400	
	Catalytic Converter MCFA DBC	1	C12-50185-001	

## DISTRIBUTOR

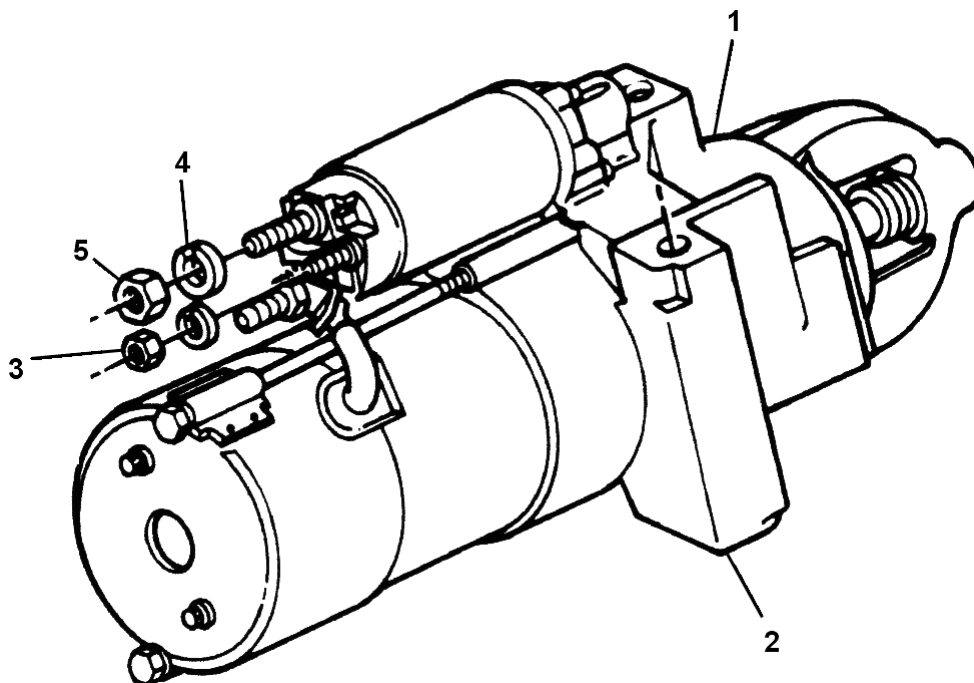


Item #	Description	Qty	IMPCO Part Number	GM Part Number
1	Distributor Ass'y (Complete-includes 2-9 below)	1		12598210
2	Cap, Distributor (Includes Screws)	1		10452458
3	Rotor, Distributor (Includes Screws)	1		10452457
4	Camshaft Sensor (Includes Screws for Cam Sensor, Cap and Rotor)	1		10485432
5	Clamp, Distributor	1	7245490	
6	Distributor Hold-down Bolt	1	S1-30871-01-0825	
7	Gasket, Distributor	1		10108445
8	Gear, Distributor Kit	1		10457356

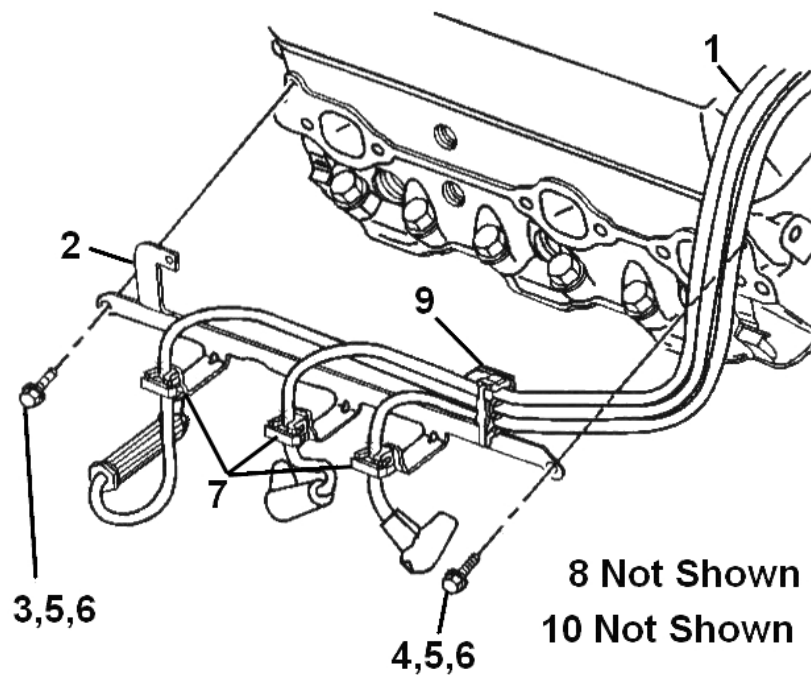
**IGNITION COIL**



Item#	Description	Qty	GM Part Number
1	Ignition Coil	1	12598697

**STARTER**

Item #	Description	Qty	Part Number	GM Part Number
1	Starter, Eng	1	821042 See TSB-197	
2	Bolt, Starter	2		11561797
3	Nut, Brass M5	1	97111000	
4	Washer Lock Brass #10	1	93003000	
5	Nut, Hex M8	1	97331000	
6	Bracket, Starter	2	7245200	
7	Nut 10-24	2	95000000	
8	Washer Lock # 10	2	93000000	
9	Washer Flat # 10	2	92000000	

**SPARK PLUG WIRES**

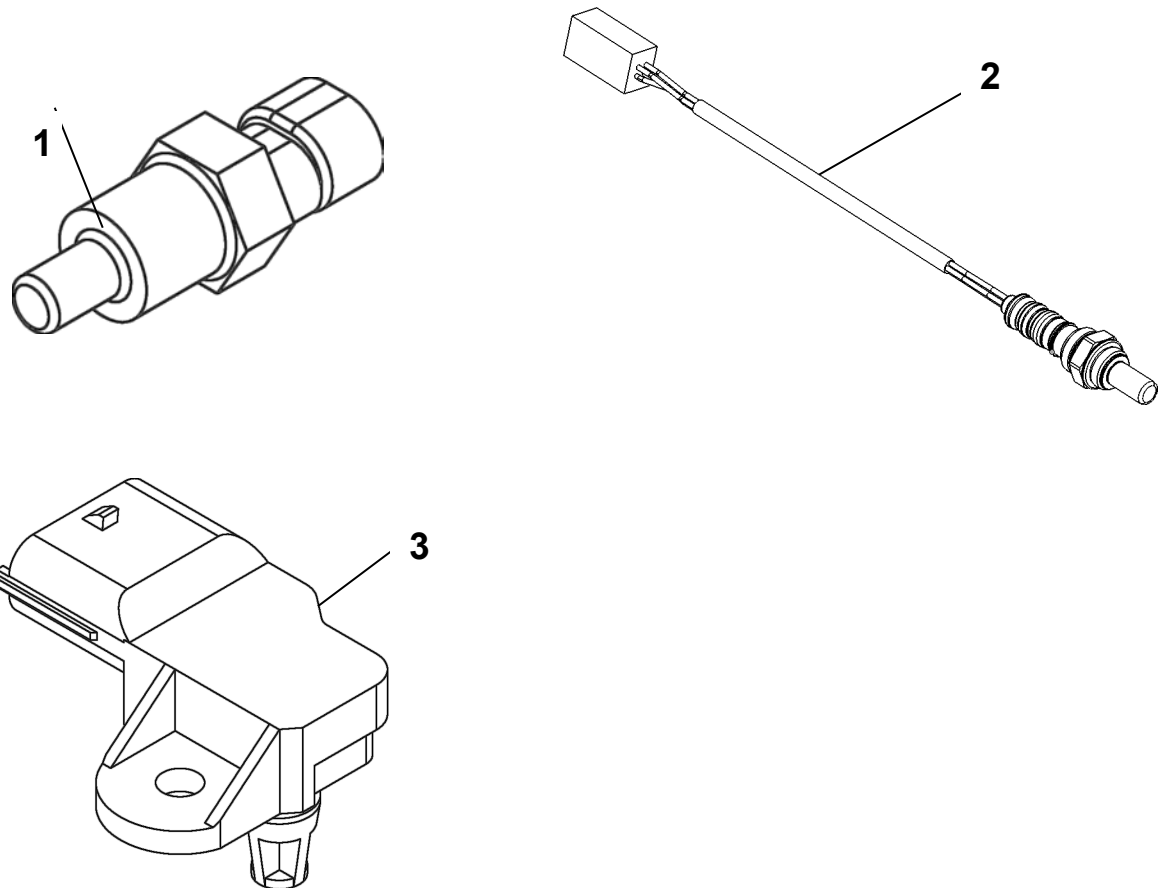
Item #	Description	Qty	Part Number	GM Part Number
1	Harness, Spark Plug	1		12173579
2	Retainer, Spy Plug Wires	2		12555948
3	Bolt Spy Plkg Rtnr Lng	3	90124050	
4	Bolt Spy Plkg Rtnr Shrt	1	90125050	
5	Washer Flat, Spark Plug Rt	4	92100000	
6	Washer, Loc Spark Plug Rt	4	93100000	
7	Retainer, Spark Wire (1)	6		12084629
8	Retainer, Spark Wire (3)	2	NSS	
9	Retainer, Spark Wire (3) Lock	2		12052037
10	Loom 7243600	AR	NSS	

## 4.3L LPG Lift Trucks

### Spectrum Series II



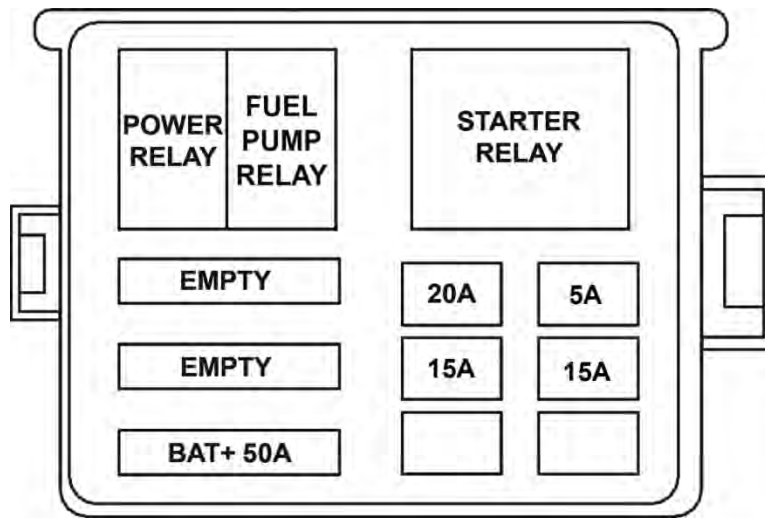
## SENSORS



Item #	Description	Qty	Part Number	GM Part Number
1	Coolant Temp Sensor	1		15326386
2	HEGO, Pre-Catalyst	1		12559855
3	Sensor, TMAP	1	E1466001	

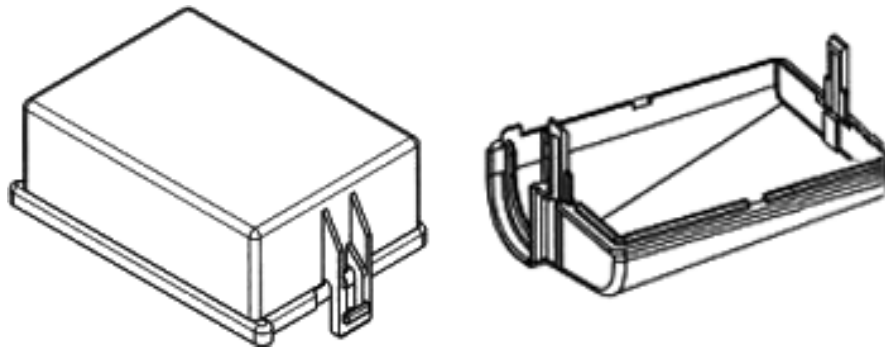


## WIRE HARNESSES/ENGINE ELECTRICAL/FUSE BOX



*Layout may vary depending on application*

## Fuse Box Covers



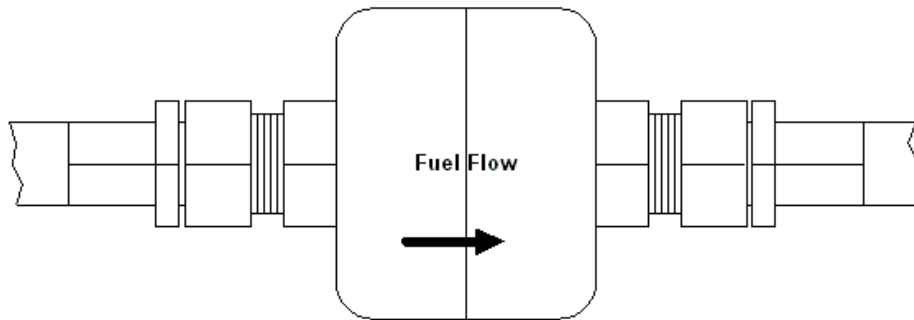
Item #	Description	Qty	Part Number
(Not Shown)	Harness, Engine Electrical	1	E1351040
	Harness, Gas Injector Jumper	1	E1372100
Power Relay	Power Relay	1	885014
Fuel Pump Relay	Fuel Pump Relay	1	885014
Starter Relay	Starter Relay	1	7381290
Alternator 50A Fuse	50A Maxi Fuse	1	7381280
5A Fuse	5A Minifuse	1	7380660
20A Fuse	20A Minifuse	1	7381270
15A Fuse	15A Minifuse	1	7381120
Starter Relay	Starter Relay	1	7381270
	Fuse Box Cover (Top) w/o Label	1	E-6131
	Fuse Box Cover (Bottom)	1	E-6132

## 4.3L LPG Lift Trucks

Spectrum Series II



### FUEL FILTER



Item #	Description	Qty	Part Number
1	Filter, 1/4" X 1/4" NPT LPG Assembly	1	F1-30869-001

## SERVICE BLOCK

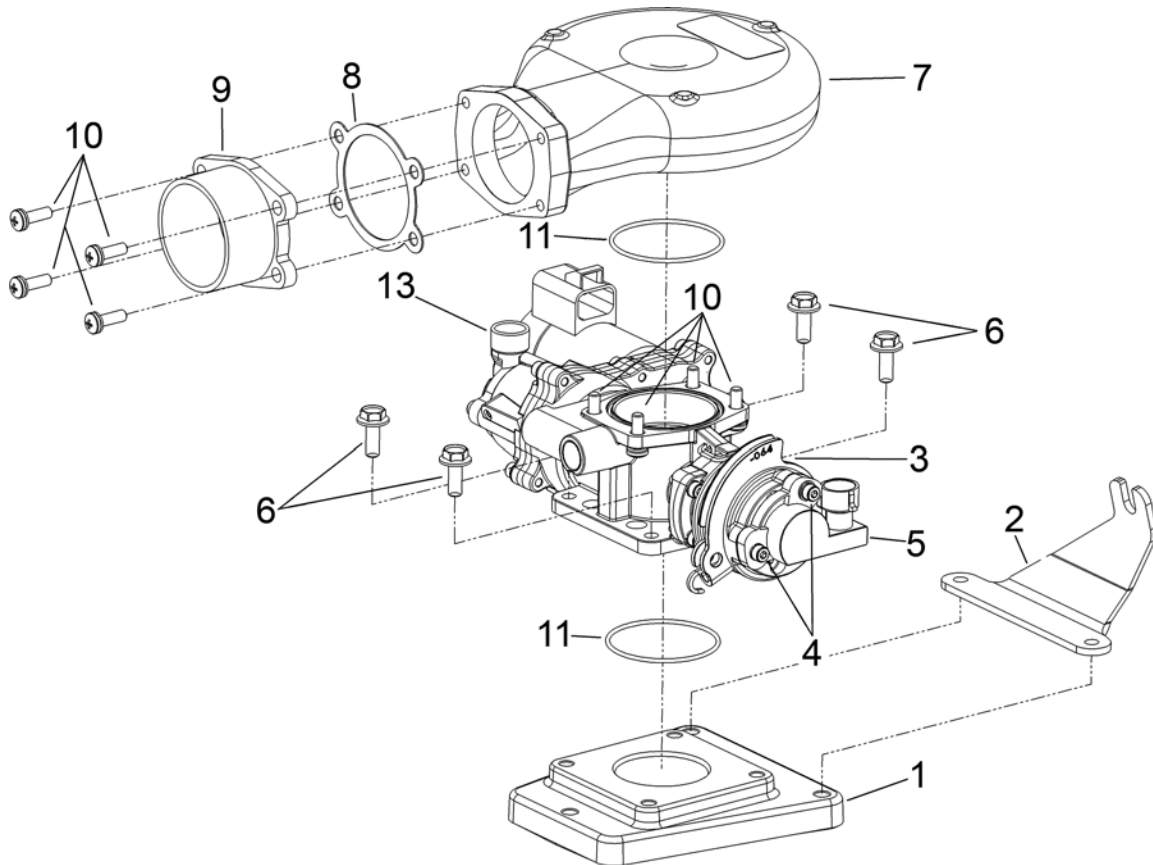


Description	Qty	GM Part Number
Service Block	1	7043321*

\*Requires that the distributor, ignition coil and other minor bolt-on parts be transferred from the original engine.

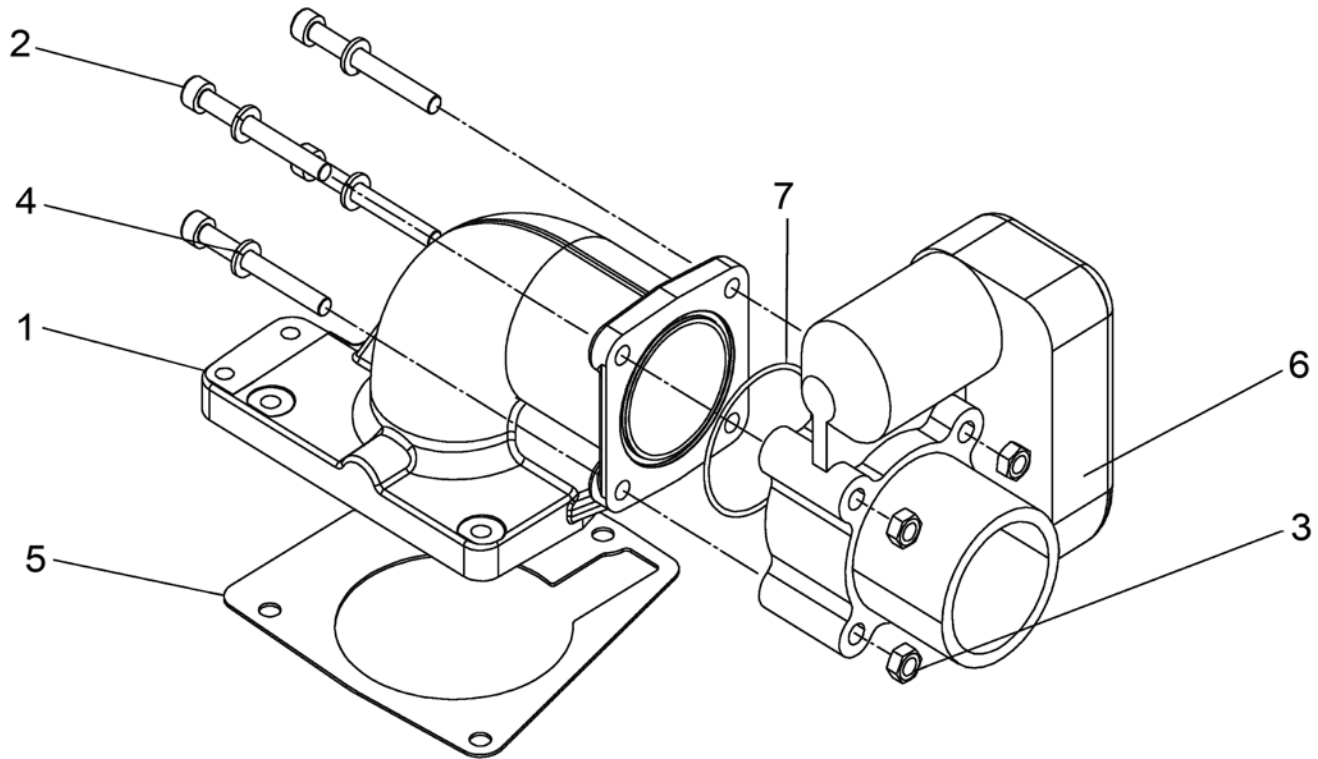
## 4.3L Gasoline Lift Trucks

### DBC GASOLINE THROTTLE BODY ASSEMBLY



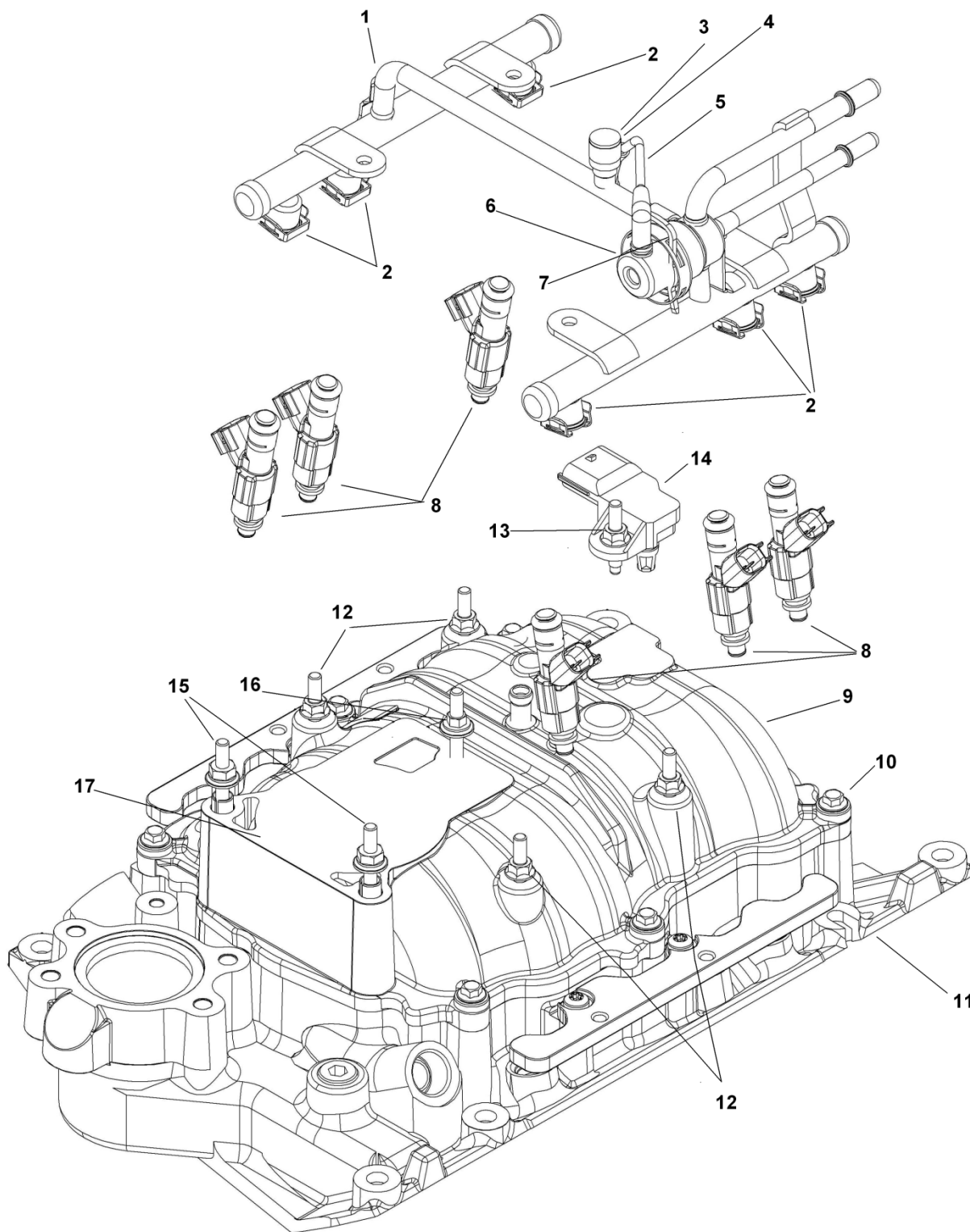
Item #	Description	Qty	Part Number	GM Part Number
1	Adapter, Manifold to throttle body	1	NSS	
2	Bracket Throttle Cable	1	B4-30870-001	
3	Assembly, Throttle Body	1	ATGN-30312-38-25-64	
4	Screws, FPP Retaining	2	S1-30295-0416	
5	Sensor, Foot Pedal Position FPP	1	S8-30237-001	
6	Bolt, Throttle Body to Adapter	4	S1-30871-02-0616	
7	Bonnet, Throttle Body Assembly	1	A2-30261-001	
8	Gasket, Air Inlet to Bonnet	1	G1-11	
9	Adapter, Air Inlet	1	A3-29-1	
10	Screws, Retaining	8	S1-30047-001	
11	O-Ring, Throttle Body Assembly	2	S3-1524-003	
12	Gasket, Adapter to Manifold	1		12570169
13	Sensor, Throttle Position		S8-30703	

## DBW GASOLINE THROTTLE BODY ASSEMBLY



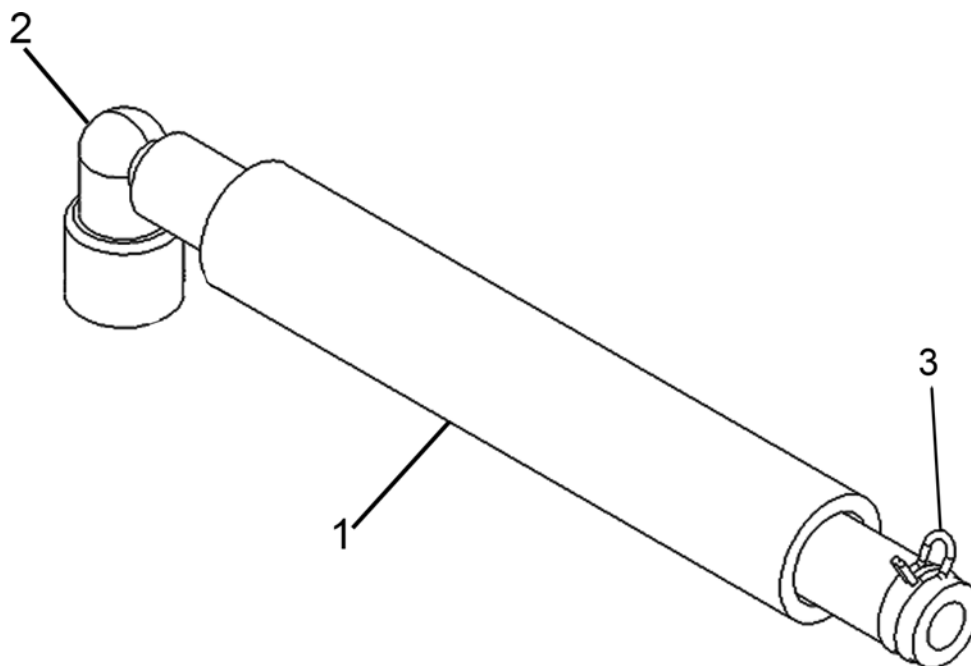
Item #	Description	Qty	Part Number	GM Part Number
1	Adapter, Elbow ETC to Manifold	1	A3-30977-001	
2	Screw, ETC to Adapter	4	S1-30295-0655	
3	Nut, Hex ETC Adapter	4	5N-001	
4	Washer Lock M6	4	W1-1988-001	
5	Gasket Elbow To Manifold	1		12570169
6	Electronic Throttle Control	1	E1312100	
7	O-Ring, ETC to Adapter	1	S3-1524-003	

### MANIFOLD WITH FUEL RAIL AND INJECTORS



**MANIFOLD WITH FUEL RAIL AND INJECTORS**

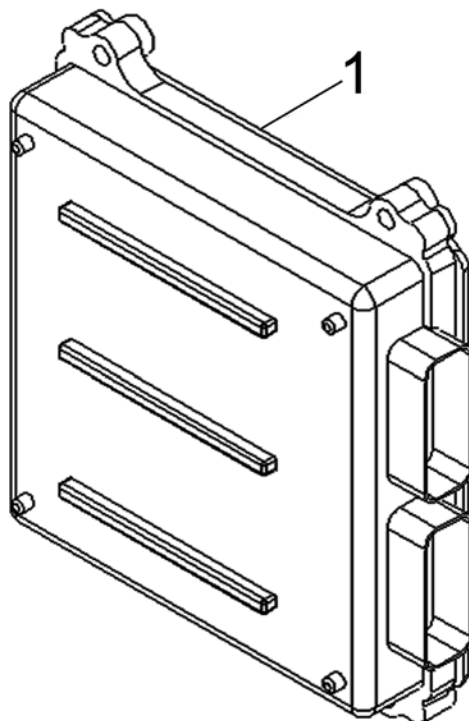
Item #	Description	Qty	Part Number	GM Part Number
1	Assembly, Fuel Rail	1		88894336
2	Clip, Injector Retainer	6		12554679
3	Cap, Fuel Pressure Test	1		25532662
4	Valve, Pressure Test	1		88894338
5	Hose, Fuel Press. Reg.	1		12570365
6	Regulator Fuel Press.	1		12568878
7	Retainer, Clip Reg.	1		12554679
8	Injector, Gasoline	6		12567905
9	Manifold, Upper	1		7043354
10	Bolts, Manifold upper	7		12550027
11	Manifold, Lower	1		12568427
12	Studs, Fuel Rail	4		12554211
13	Bolt, TMAP	1		22539278
14	Sensor, TMAP	1		12568929
15	Bolt, Throttle Body Front	2		17113216
16	Bolt, Throttle Body Rear	1		17123585
17	Gasket, Upper to Lower Manifold	1		12567902
18	Plug, EGR	1	7152010	
Not Shown	Fitting, 90 Brake Boost	1	417-03	
Not Shown	Cap, Rbr, Intake Manifold Rr	1	45342	
Not Shown	Fitting, Str Brake Boost	1	7144350	

**PCV HOSE ASSEMBLY**

Item #	Description	Qty	Part Number	GM Part Number
1	Hose Assembly, PCV DBW	1	AH1-30853-019	
	Hose Assembly, PCV DBC	1	AH1-30853-020	
2	Valve, PCV	1		6487779
3	Clamp Hose PCV	1	C2-16664-1	
Not Shown	PCV Adapter (2005)	1	F4-30912-001	

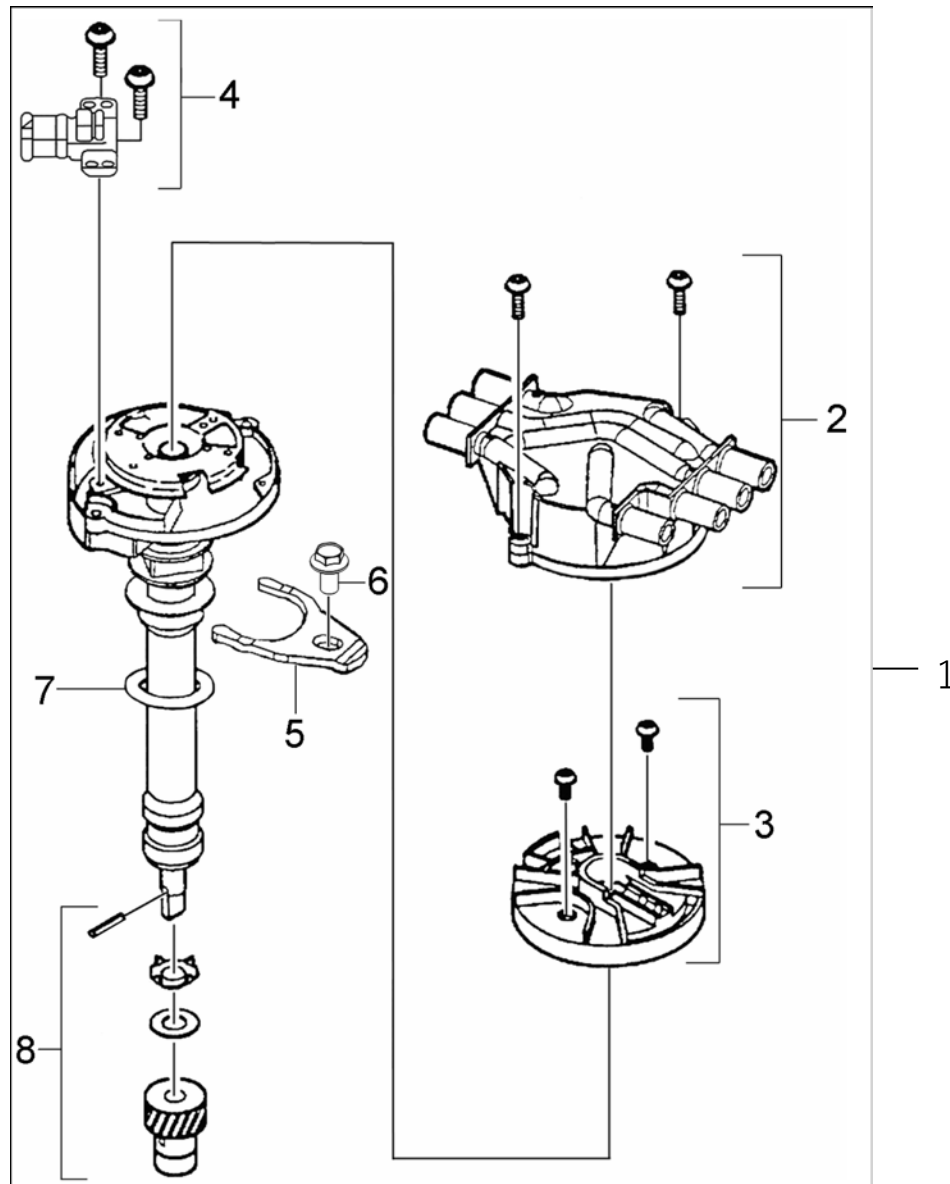


### ENGINE CONTROL UNIT



Item #	Description	Qty	Part Number
1	MCFA 93820-07100 Hyster/Yale 580043125	1	1222701
	NMHG/NACCO/Hyster/Yale Hyster/Yale 580043457; 2063342		1225701
	MCFA 93820-06900		1326651

## DISTRIBUTOR



Item #	Description	Qty	IMPCO Part Number	GM Part Number
1	Distributor Ass'y (Complete-includes 2-9 below)	1		12598210
2	Cap, Distributor (Includes Screws)	1		10452458
3	Rotor, Distributor (Includes Screws)	1		10452457
4	Camshaft Sensor (Includes Screws for Cam Sensor, Cap and Rotor)	1		10485432
5	Clamp, Distributor	1	7245430	
6	Distributor Hold-down Bolt	1	S1-30871-01-0825	
7	Gasket, Distributor	1		10108445
8	Gear, Distributor Kit	1		10457356

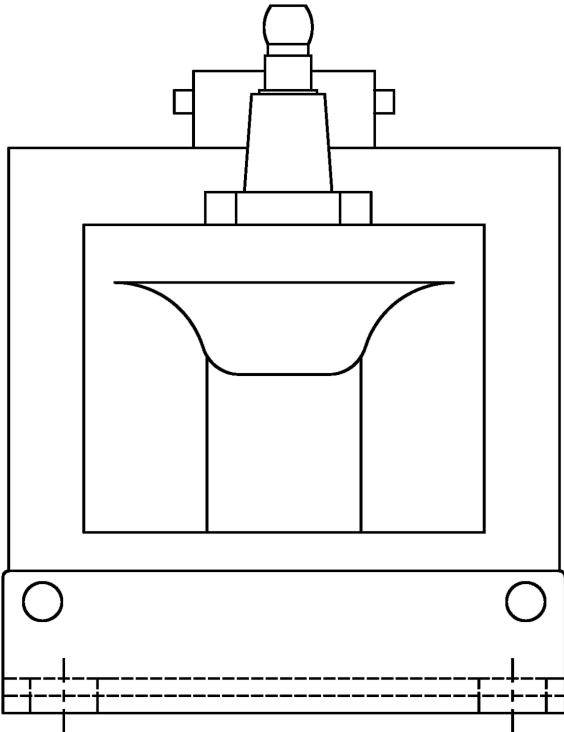
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

# 4.3L Gasoline Lift Trucks

Spectrum Series II

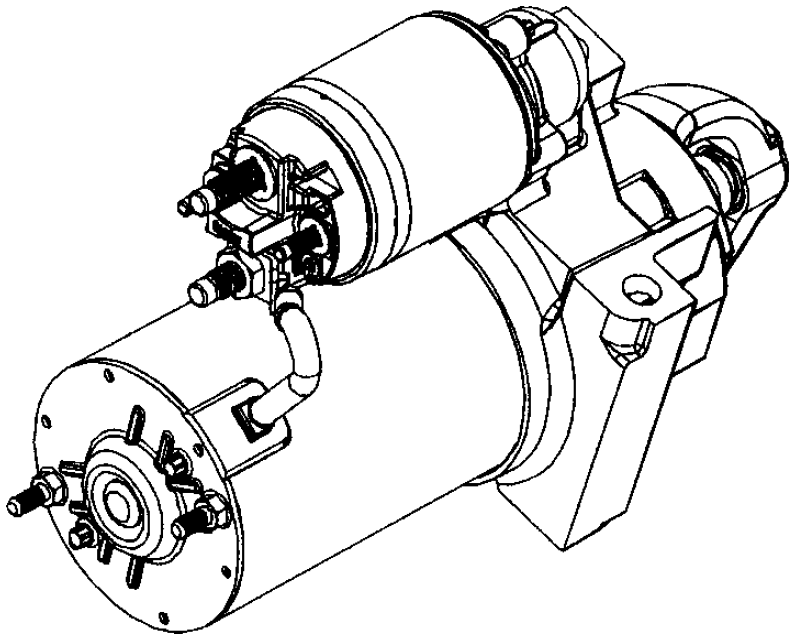


## IGNITION COIL



Item#	Description	Qty	GM Part Number
1	Ignition Coil	1	12598697

**STARTER**



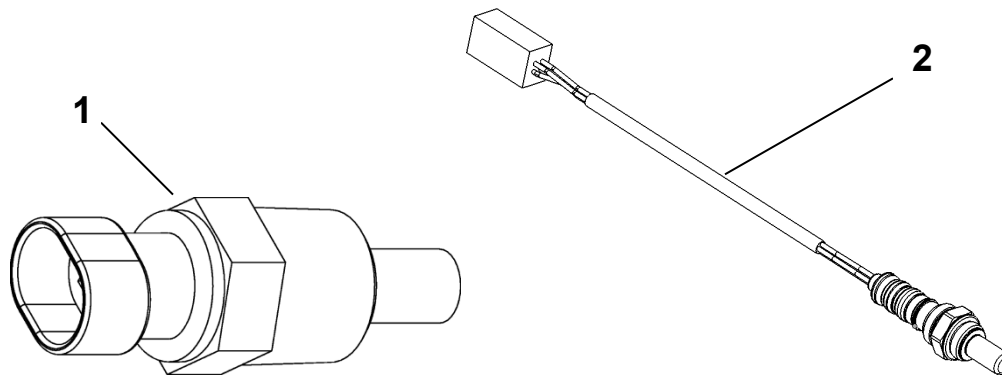
Item #	Description	Qty	IMPCO Part Number
1	Starter	1	821042 See TSB-197

## 4.3L Gasoline Lift Trucks

### Spectrum Series II



#### SENSORS

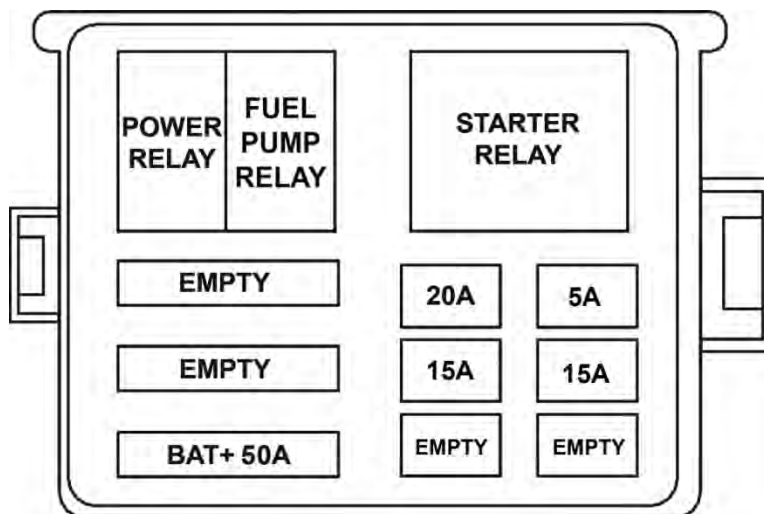
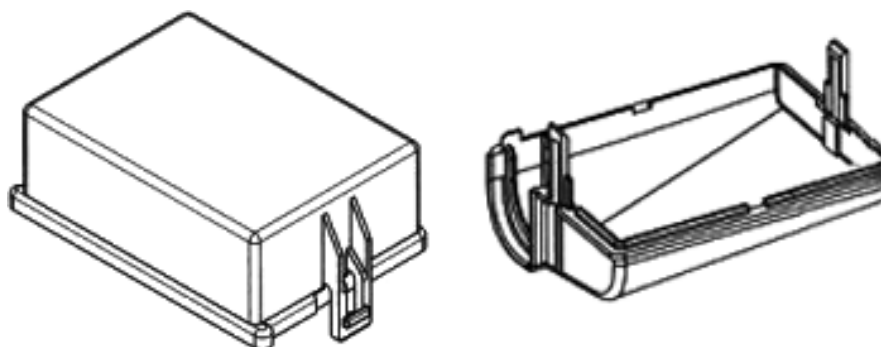


Item #	Description	Qty	GM Part Number
1	Coolant Temp Sensor	1	15326386
2	HEGO, Pre-Catalyst	1	12559850

**WIRE HARNESS ENGINE ELECTRICAL**



Item #	Description	Qty	Part Number
1	Harness, Engine Electrical DBW	1	E1351040
	Harness, Engine Electrical DBC	1	E1351020

**ELECTRICAL/FUSE BOX****Fuse Box Covers**

Item #	Description	Qty	IMPCO Part Number
Power Relay	Power Relay	1	885014
Starter Relay	Starter Relay	1	792185
Alternator 50A Fuse	50A Maxi Fuse	1	7381280
5A Fuse	5A Minifuse	1	7380660
20A Fuse	20A Minifuse	1	7381270
15A Fuse	15A Minifuse	1	7381120
15A Fuse	15A Minifuse	1	7381120
	Fuse Box Cover (Top) w/Label	1	E-6131-1
	Fuse Box Cover (Top) w/o Label	1	E-6131
	Fuse Box Cover (Bottom)	1	E-6132

SERVICE BLOCK



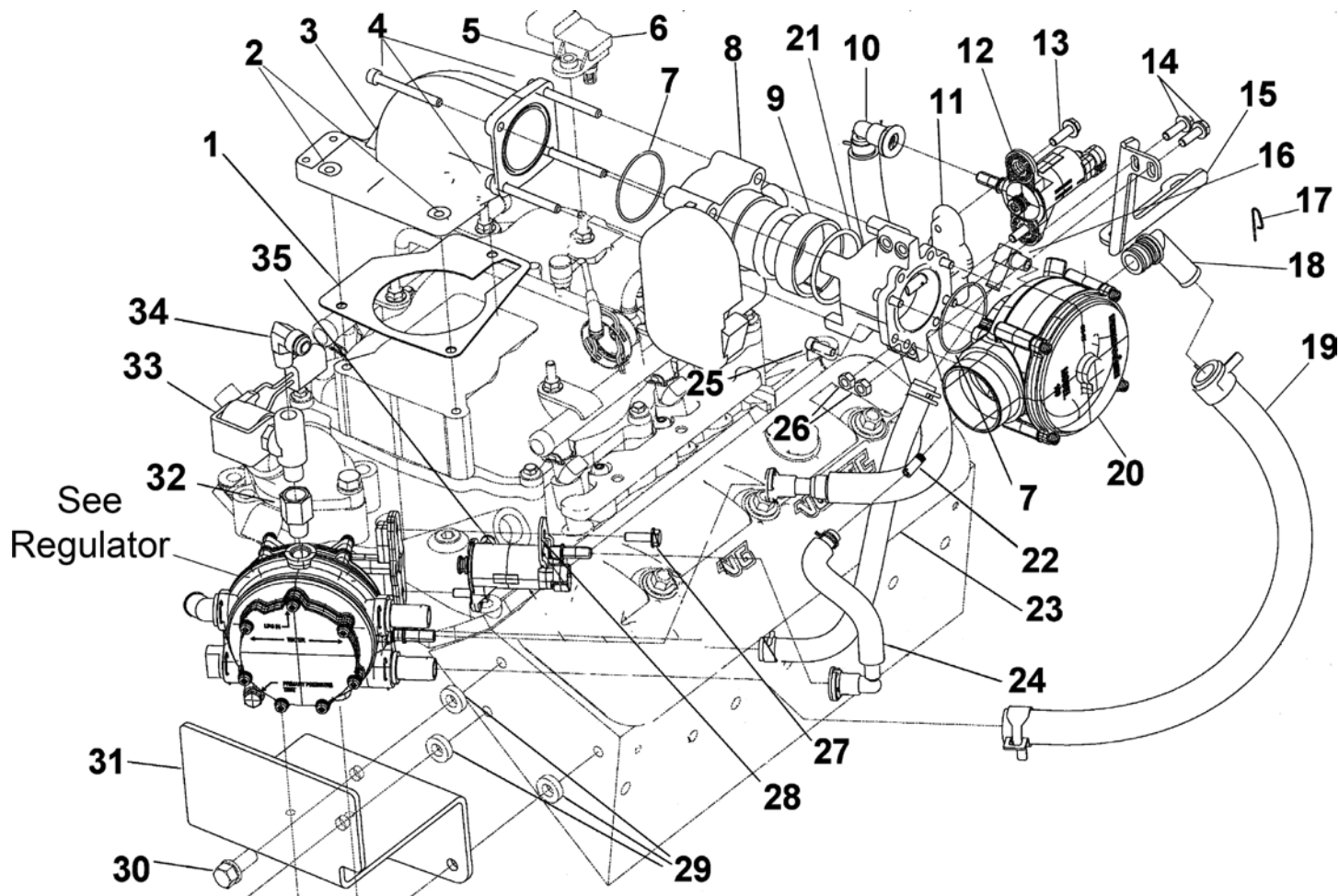
Description	Qty	GM Part Number
Service Block	1	7043321

\*Requires that the distributor, ignition coil and other minor bolt-on parts be transferred from the original engine



### 4.3L Dual Fuel Lift Trucks

#### THROTTLE BODY ASSEMBLY



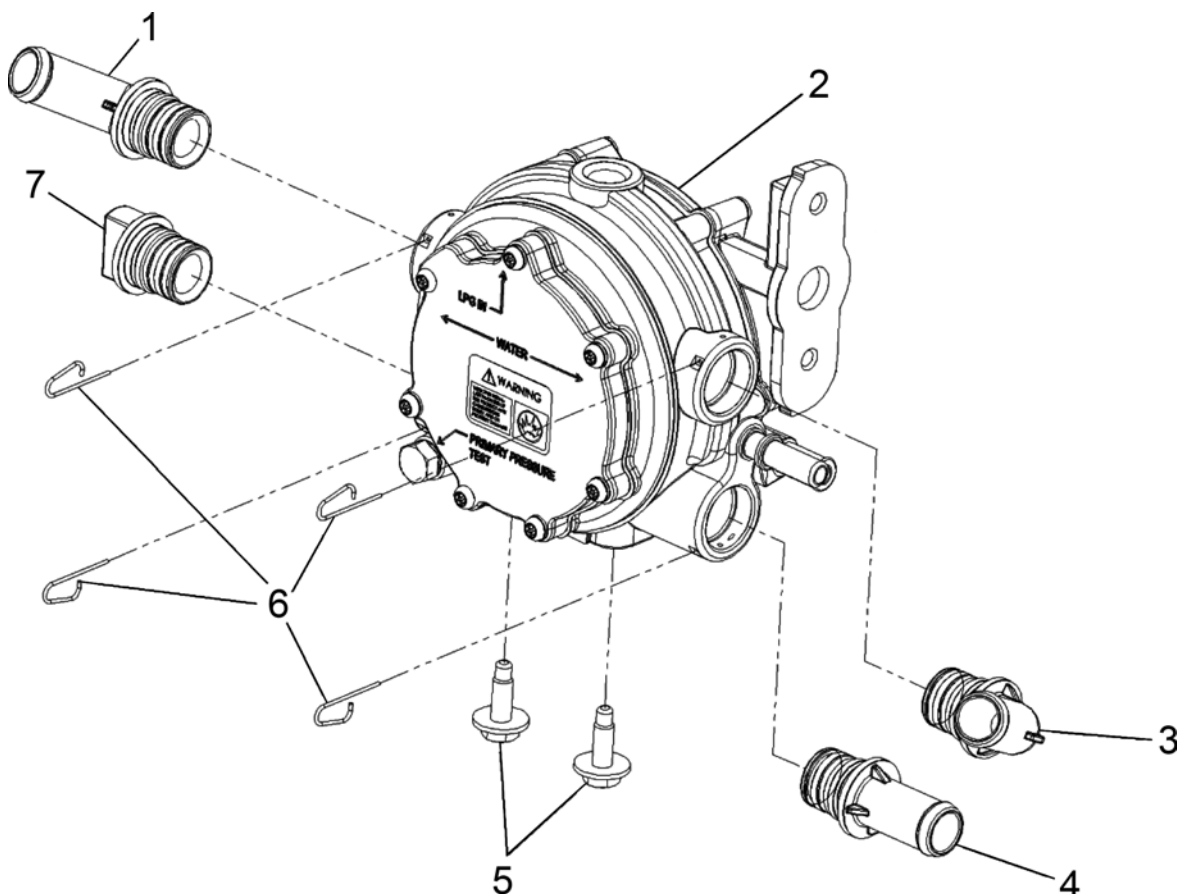
## THROTTLE BODY ASSEMBLY

Item #	Description	Qty	Part Number	GM Part Number
1	Gasket Throttle Body	1	7175260	
2	Adapter, Manifold TO ETC	1	A3-30977-001	
3	Bolt, Adapter to Manifold Front	2		17113216
3A	Bolt, Adapter to Manifold Rr	1		17123585
4	Bolt, Adapter To ETC	4	S1-30295-0655	
5	Bolt, TMAP	1		22539278
6	Sensor, TMAP	1		12568929
7	O-ring Seals	2	S3-1524-003	
8	Throttle, Control Electronic	1	E1312100	
9	Sleeve, Seal ETC	1	S6-30976-001	
10	Hose Ass'y, FTV Supply	1	AH1-30852-004	
11	Adapter FTV Mounting	1	AA3-30952-001	
12	Valve, Fuel Trim	1	V3-30270-277	
13	Bolt, FTV Mnt	2	S1-30283-0620	
14	Bolt, FTV Support Bracket	2	S1-30871-02-0620	
15	Bracket FTV Mnt Supt	1	NSS	
16	Fitting Elbow Bal Line	1	F4-12	
17	Pin, Retainer Ftg Mix Inlet	1	P1-30559	
18	Fitting, Mixer Inlet	1	AF4-30614	
19	Hose Ass'y, Mix Inlet	1	AH1-30853-016	
20	Mixer Ass'y FT 100	1	FT100M-30828-52-001	
21	O-ring Seal Mix		S3-1524-004	
22	Fitting, Mix to PTV Line	1	F4-2	
23	Hose Ass'y Bal Line	1	AH1-30853-001	
24	Hose Ass'y PTV Supply	1	AH1-30852-009	
25	Screw, Mix Mnt	4	S1-31083-1224-075	
26	Nut, FTV Mnt Adapter Bolt	2	5N-001	
27	Bolt, PTV Mnt	2	S1-30283-0620	
28	Clamp PTV Mnt	1	C2-30267-001	
29	Washer Lock 3/8	3	93300000	
30	Bolt, LPR Mnt Brkt	3	S1-30283-0620	
31	Bracket, LPR Mnt	1	B4-30985-001	
32	Regulator, Low Pressure	1	CS4-30772-004	
33	Fitting, Adapter LPL to LPR	1	F4-30953-001	
34	Lock Off Electric, Low Pressure	1	ET98-30515-001	
35	Fitting LPL Inlet	1	F4-25	
36	Valve, Pressure Trim	1	V3-30272-279	

**THROTTLE BODY ASSEMBLY**  
**(ITEMS NOT SHOWN IN ILLUSTRATION)**

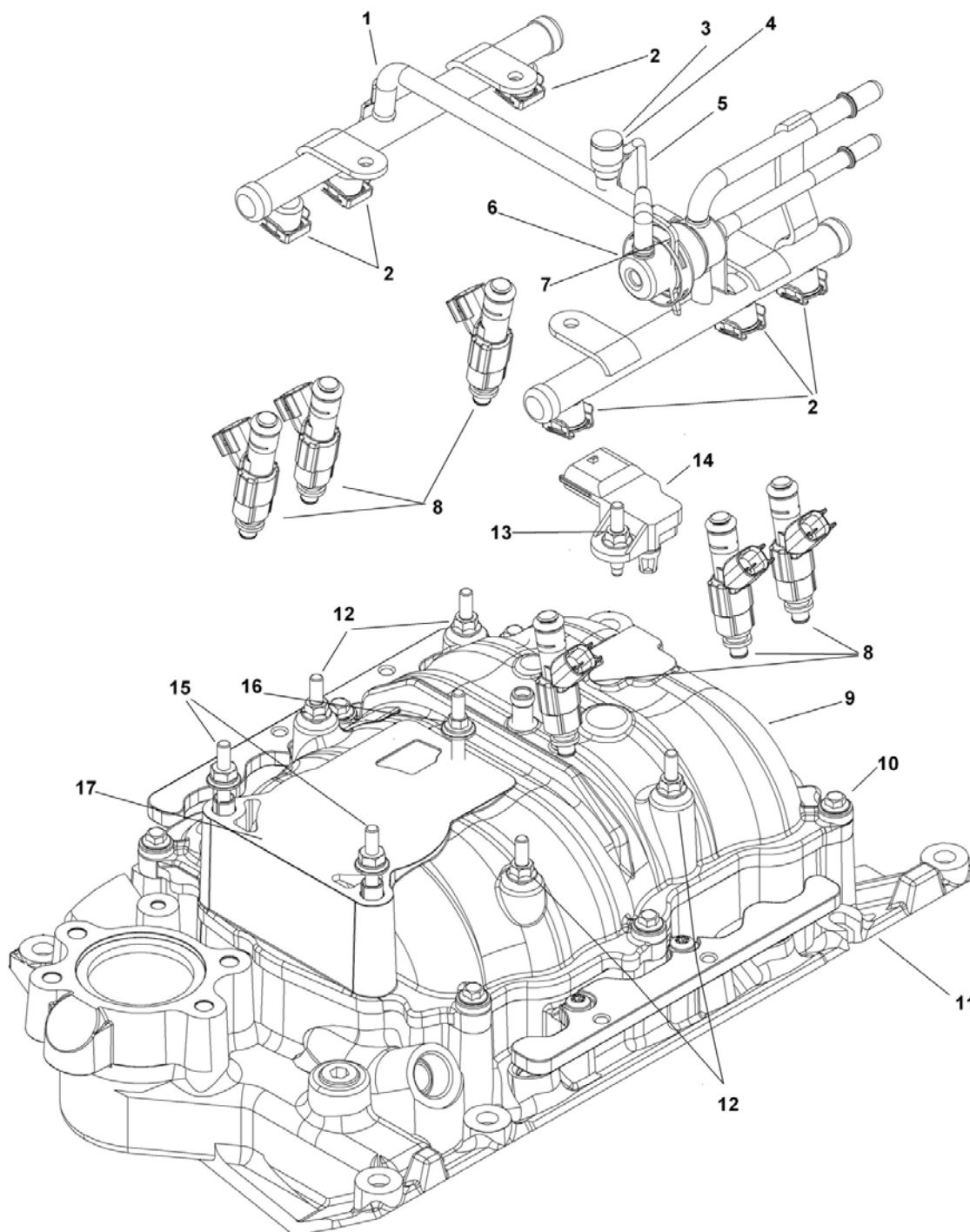
Description	Qty	Part Number	GM Part Number
Hose, Assembly Coolant	1	AH1-30853-021	
Hose, Assembly Coolant	1	AH1-30853-007	
Cap Vinyl Black	1	C2-15137-004	
Bolt, LPR Brkt to Eng	3	90325100	
Washer, Bolt LPR Brkt	3	93300000	
Clamp P, Coolant Line	1		2024136
Nut, ¼ 20, Coolant line Sprt	1	95100000	
Washer, coolant line Sprt	1	93100000	
Retainer, Coolant Wire	1		12052037
Bolt, FTV Sprt Brkt To Manifold	2	98227016	
Washer, Sprt Brkt to Manifold	2	93920000	
Fitting, Manifold To Brake Booster	1	417-03	
Fitting, Brake Booster	1	7144350	

## LPG REGULATOR ASSEMBLY



Item #	Description	Qty	IMPCO Part Number
1	Fitting, Coolant	1	AF4-50045-001
2	Assembly Regulator	1	CS4-30772-004
3	Fitting, Coolant 5/8" 70 Degree	1	AF4-30614
4	Fitting Vapor Outlet	1	AF4-30615
5	Bolts, Mounting	2	S1-30283-0620
6	Pin, Retaining	4	P1-30559
7	Cap, Regulator	1	AF4-30613

### MANIFOLD WITH FUEL RAIL AND INJECTORS



## 4.3L Dual Fuel Lift Trucks

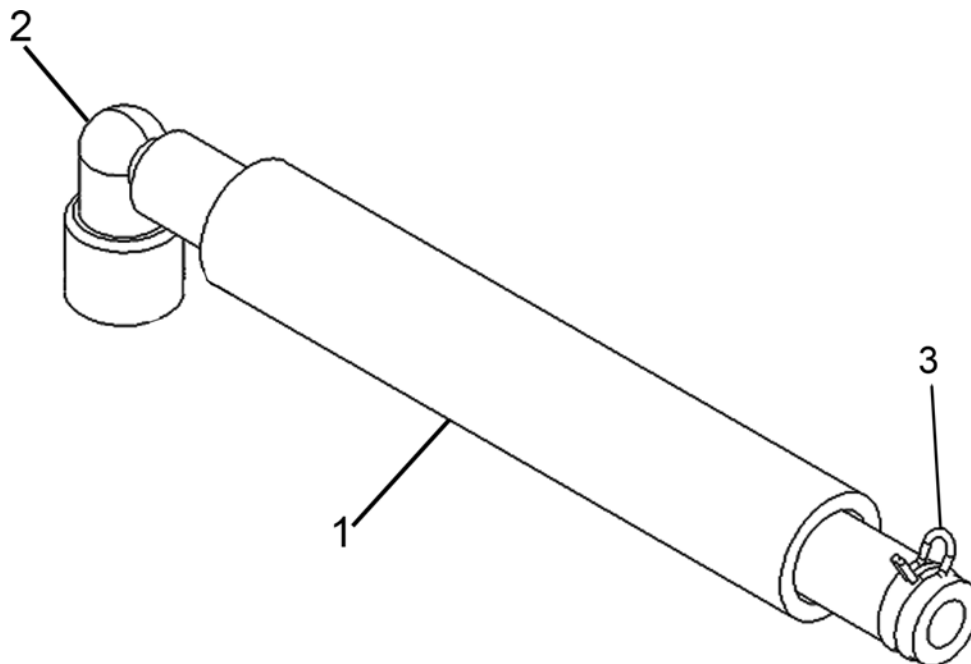
### Spectrum Series II



### MANIFOLD WITH FUEL RAIL AND INJECTORS

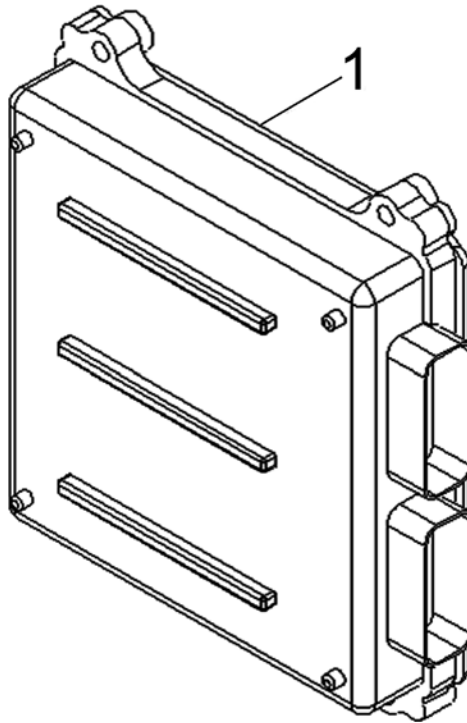
Item #	Description	Qty	Part Number	GM Part Number
1	Assembly, Fuel Rail	1		88894336
2	Clip, Injector Retainer	6		12554679
3	Cap, Fuel Pressure Test	1		25532662
4	Valve, Pressure Test	1		88894338
5	Hose, Fuel Press. Reg.	1		12570365
6	Regulator Fuel Press.	1		12568878
7	Retainer, Clip Reg.	1		12554679
8	Injector, Gasoline	6		7176490
9	Manifold, Upper	1		7043354
10	Bolts, Manifold upper	7		12550027
11	Manifold, Lower	1		12568427
12	Studs, Fuel Rail	4		12554211
13	Bolt, TMAP	1		22539278
14	Sensor, TMAP	1		12568929
15	Bolt, Throttle Body Front	2		17113216
16	Bolt, Throttle Body Rear	1		17123585
17	Gasket, Upper to Lower Manifold	1		12567902
18	Plug, EGR	1	7152010	
Not Shown	Fitting, 90 Brake Boost	1	417-03	
Not Shown	Cap, Rbr, Intake Manifold Rr	1	45342	
Not Shown	Fitting, Str Brake Boost	1	7144350	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

**PCV HOSE ASSEMBLY**

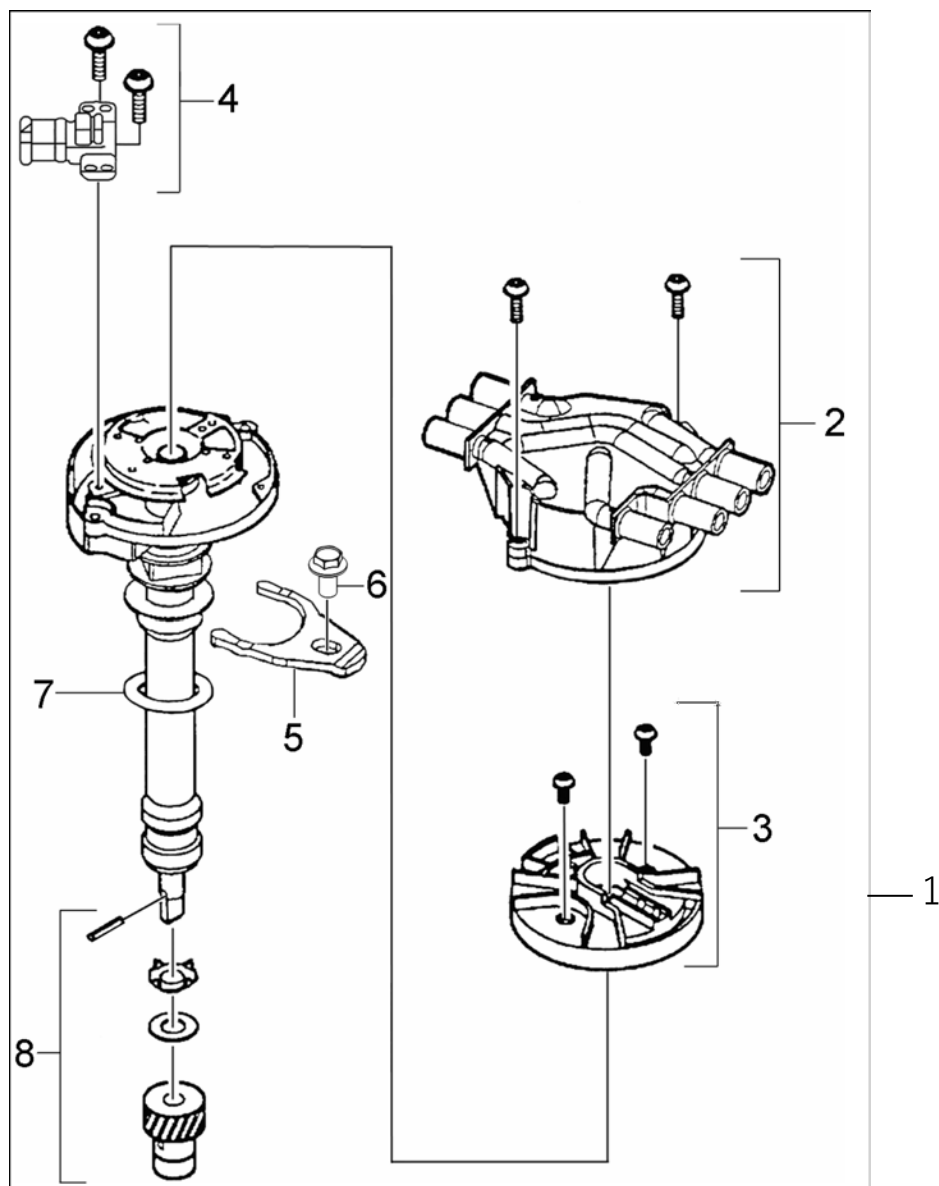
Item #	Description	Qty	Part Number	GM Part Number
1	Hose Assembly, PCV DBW	1	AH1-30853-019	
2	Valve, PCV	1		6487779
3	Clamp Hose PCV	1	C2-16664-1	
Not Shown	PCV Adapter (2005)	1	F4-30912-001	
Not Shown	Elbow Crank Vent	1		1263193

#### ENGINE CONTROL UNIT



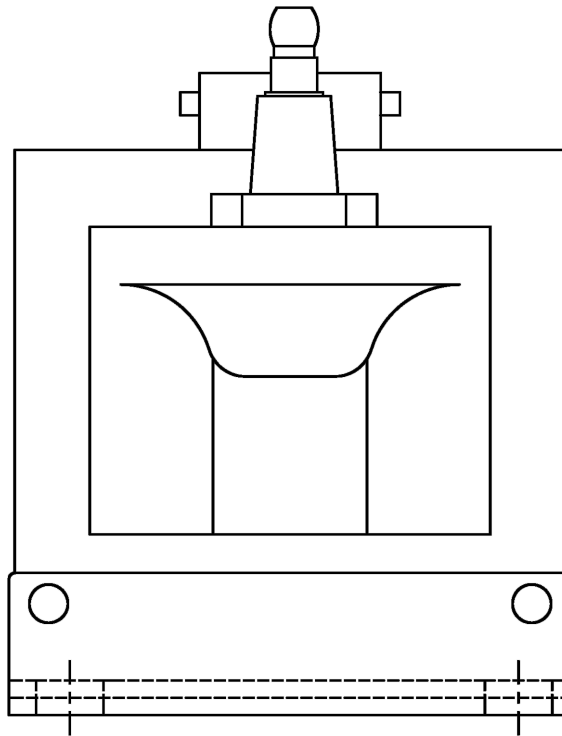
Item #	Description	Qty	Part Number
1	Odyssey LPG/Gas	1	NLA



**DISTRIBUTOR**

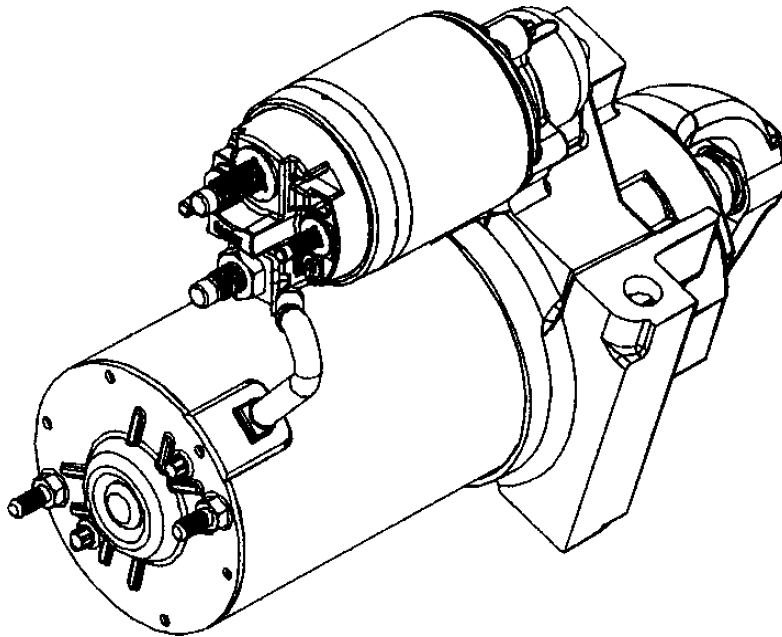
Item #	Description	Qty	IMPCO Part Number	GM Part Number
1	Distributor Ass'y (Complete-includes 2-9 below)	1		12598210
2	Cap, Distributor (Includes Screws)	1		10452458
3	Rotor, Distributor (Includes Screws)	1		10452457
4	Camshaft Sensor (Includes Screws for Cam Sensor, Cap and Rotor)	1		10485432
5	Clamp, Distributor	1	7245430	
6	Distributor Hold-down Bolt	1	S1-30871-01-0825	
7	Gasket, Distributor	1		10108445
8	Gear, Distributor Kit	1		10457356

#### IGNITION COIL



Item#	Description	Qty	GM Part Number
1	Ignition Coil	1	12598697

## STARTER



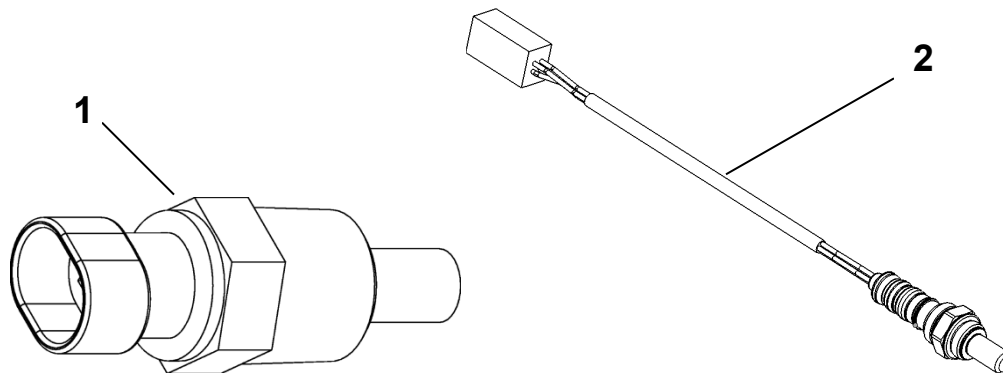
Item #	Description	Qty	IMPCO Part Number
1	Starter	1	821042 See TSB-197

## 4.3L Dual Fuel Lift Trucks

### Spectrum Series II



#### SENSORS



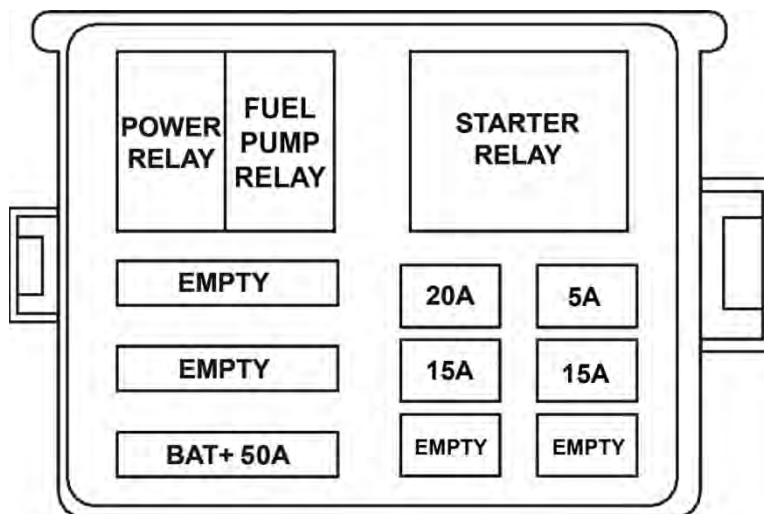
Item #	Description	Qty	GM Part Number
1	Coolant Temp Sensor	1	15326386
2	HEGO, Pre-Catalyst	1	12559850

## WIRE HARNESS ENGINE ELECTRICAL



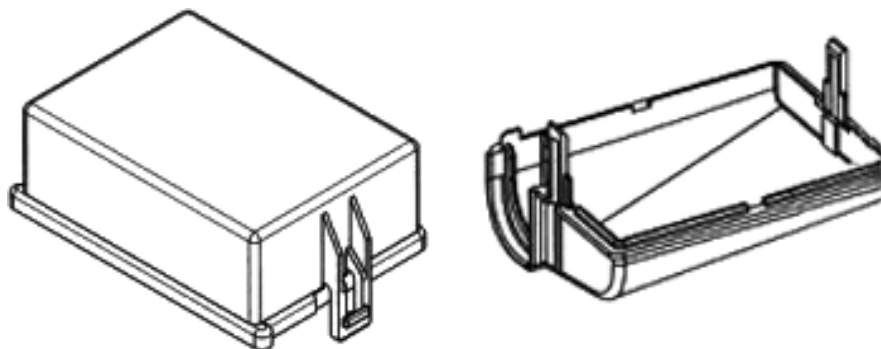
Item #	Description	Qty	Part Number
1	Harness, Engine Electrical DBW	1	E1351040
	Harness, Engine Electrical DBC	1	E1371100

## WIRE HARNESSES/ENGINE ELECTRICAL/FUSE BOX



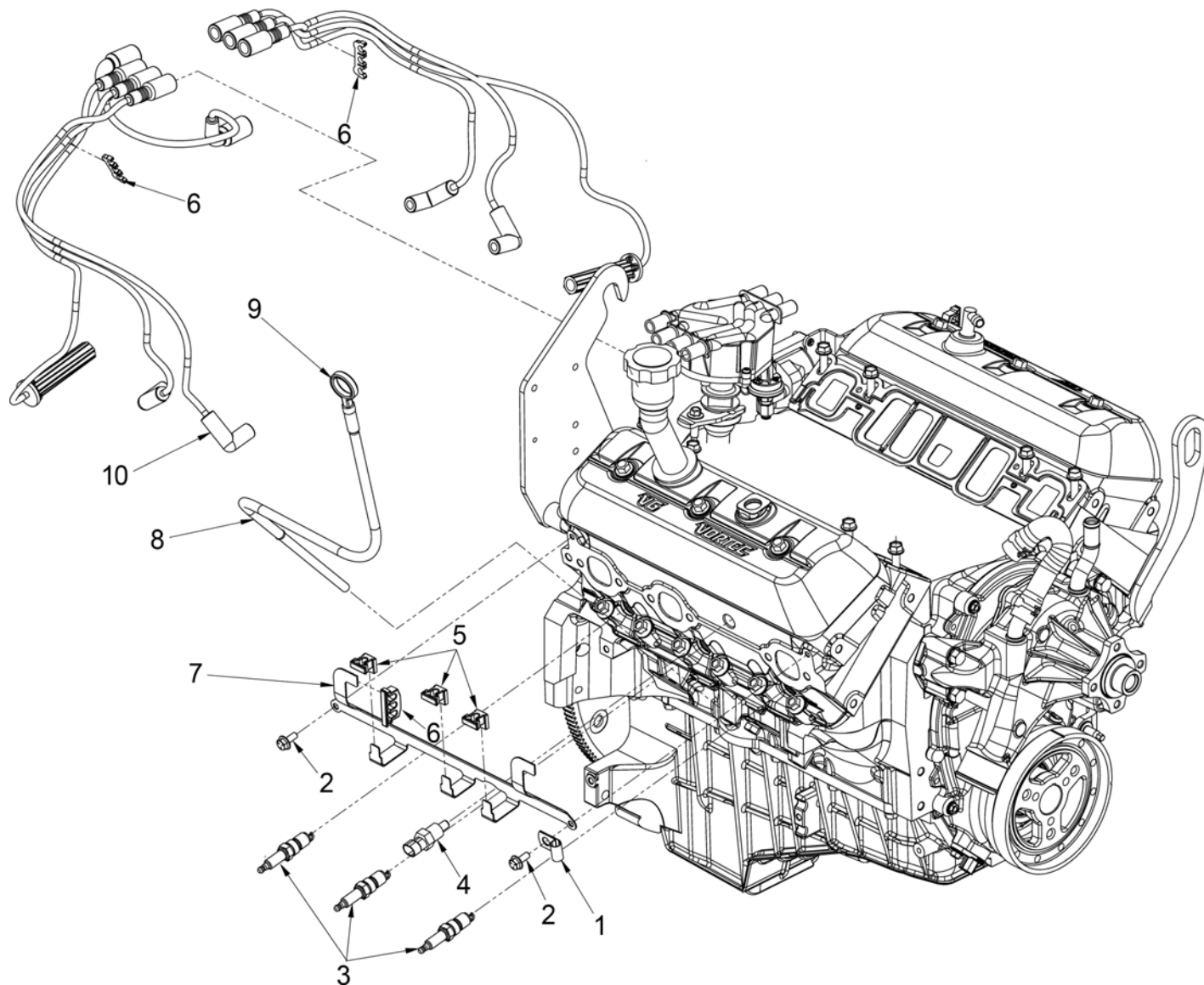
*Layout may vary depending on application*

### Fuse Box Covers



Item #	Description	Qty	IMPCO Part Number
Power Relay	Power Relay	1	885014
Starter Relay	Starter Relay	1	7381290
Alternator 50A Fuse	50A Maxi Fuse	1	7381280
5A Fuse	5A Minifuse	1	7380660
20A Fuse	20A Minifuse	1	7381270
15A Fuse	15A Minifuse	1	7381220
15A Fuse	15A Minifuse	1	7381220
	Fuse Box Cover (Top) w/Label	1	E-6131-1
	Fuse Box Cover (Top) w/o Label	1	E-6131
	Fuse Box Cover (Bottom)	1	E-6132

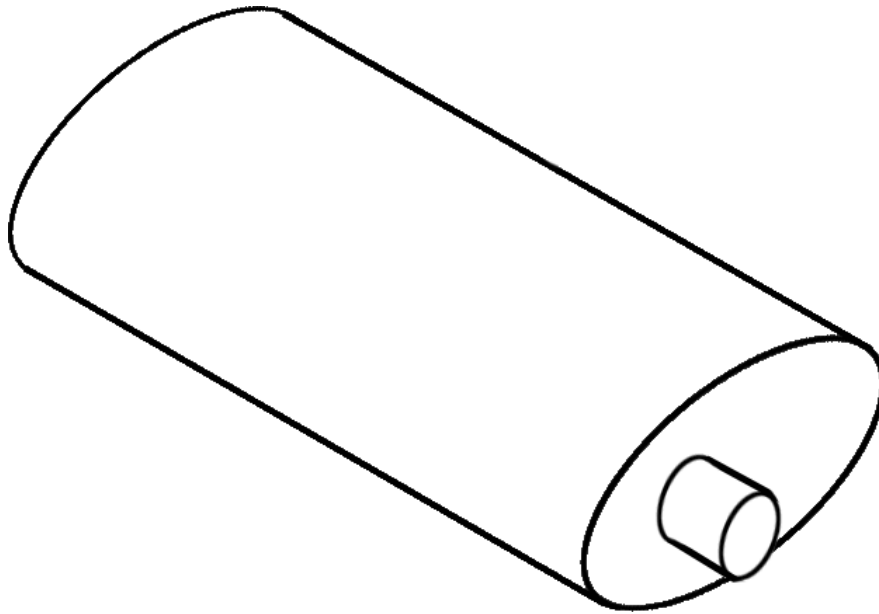
## ENGINE SPARK PLUGS, SPARK PLUG WIRES & OIL GAUGE



Item #	Description	Qty	Part Number	GM Part Number
1	Clamp, Support 3/8 x 3/8	2	7100290	
2	1/4 -20 x 5/8 Bolt Grade 5	4	90125063	
3	Spark Plug, AC R44LTS	6		19157986
4	Sensor, Coolant Temp	1		15326386
5	Retainer, Ignition Wire	6		12084629
6	Retainer, Spark Plug	2		12052037
7	Bracket, Plug Wire Support	2		12555948
8	Tube, Dipstick	1	7100730	
9	Dipstick, Oil Level	1	7100720	
10	Spark Plug Wire Harness	1		12173579

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

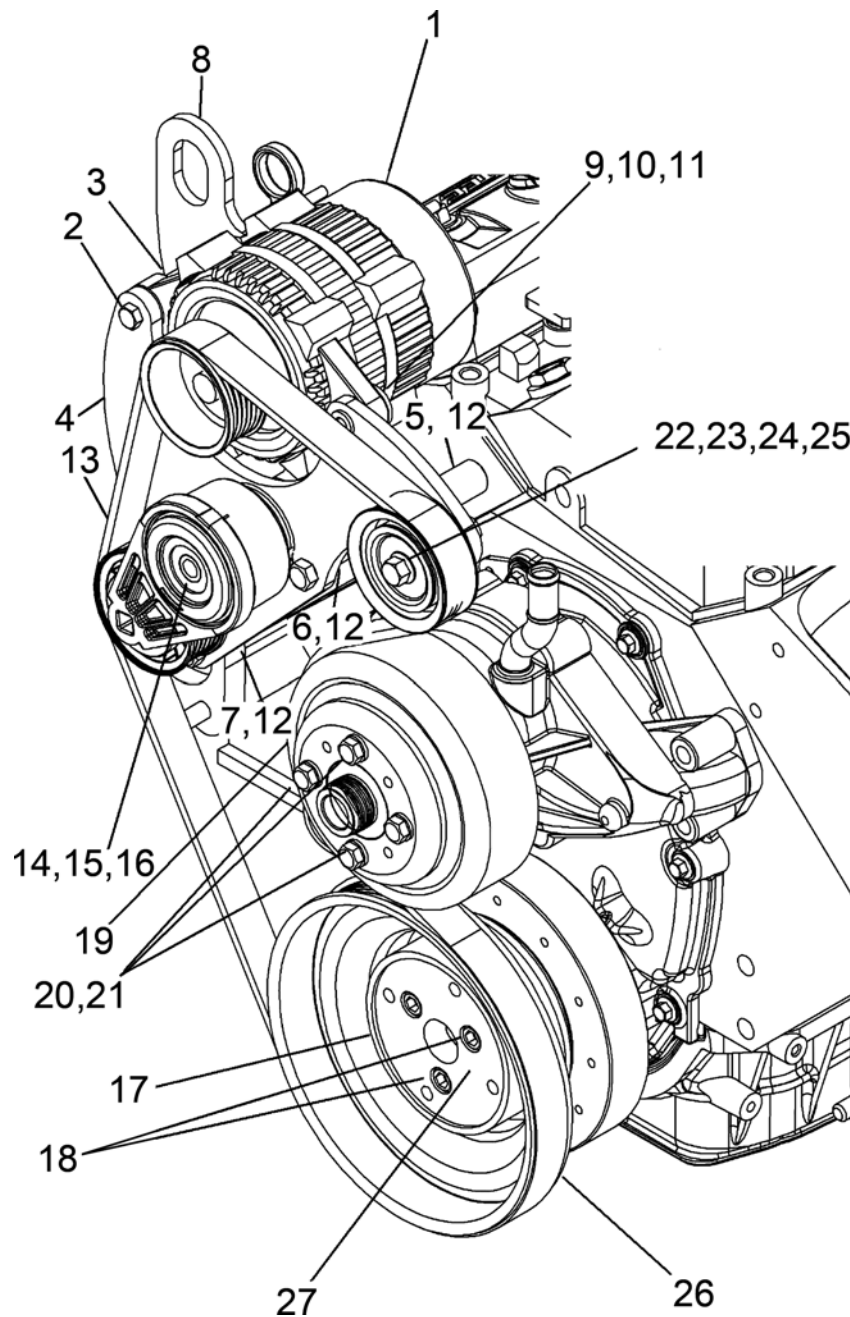
**THREE WAY CATALYTIC MUFFLER**



Item #	Description	Qty	Part Number
1	Muffler, Three Catalytic Gasoline	1	7332400



#### ENGINE, FRONT COMPONENTS



## 4.3L Dual Fuel Lift Trucks

### Spectrum Series II



### ENGINE, FRONT COMPONENTS

Item #	Description	Qty	IMPCO Part Number	GM Part Number
1	Alternator, 12V	1	7245280	
2	Bolt, Alt, Mnt	1	98337050	
3	Spacer, Alt Mnt	1	7245260	
4	Plate, Alt Mnt	1	7245190	
5	Spacer, Alt Mnt 4.65" Lg	1	7245270	
6	Spacer, Alt Mnt 2.84" Lg	2	7245240	
7	Spacer, Alt Mnt 1.56" Lg	2	7245250	
8	Plate Brace. W Left Hk	1	7245180	
9	Washer Lock M8	1	93930000	
10	Bolt, Alt Mnt M8	1	98333110	
11	Nut Flanged M8	1		11500749
12	Bolt, Alt Mnt 3/8	3	90305550	
13	Belt Serpentine	1	NSS	
14	Tensioner Belt	1		12580296
15	Bolt M10 Tensioner	1		7143150
16	Nut, Flanged Tensor Bolt	1	97440000	
17	Adapter Fnt Ply Inner	1	7144780	
17A	Adapter Fnt Ply Outer	1	7144770	
18	Bolt 3/8 Adapt Ply	6	90378100	
19	Pulley, Water Pump	1		12550053
20	Bolt, Ply Water Pump	4	98333020	
21	Washer Loc Water Pump	4	93930000	
22	Pulley, idler	1		33505
23	Spacer, Idler	1	7144810	
24	Bolt, Idler	1	98443060	
25	Nut Idler Bolt	1	97440000	
26	Pulley, Crank Shaft	1		10085754
27	Bolt Ply Crank Shaft	1	90415250	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

**SERVICE BLOCK**

Description	Qty	GM Part Number
Service Block	1	7043321

\*Requires that the distributor, ignition coil and other minor bolt-on parts be transferred from the original engine



# Spectrum Series III

## (2007-2009)



IMPCO technologies offers factory replacement fuel system components for the Spectrum Series III certified engine systems. These components are only available through authorized IMPCO distributors.

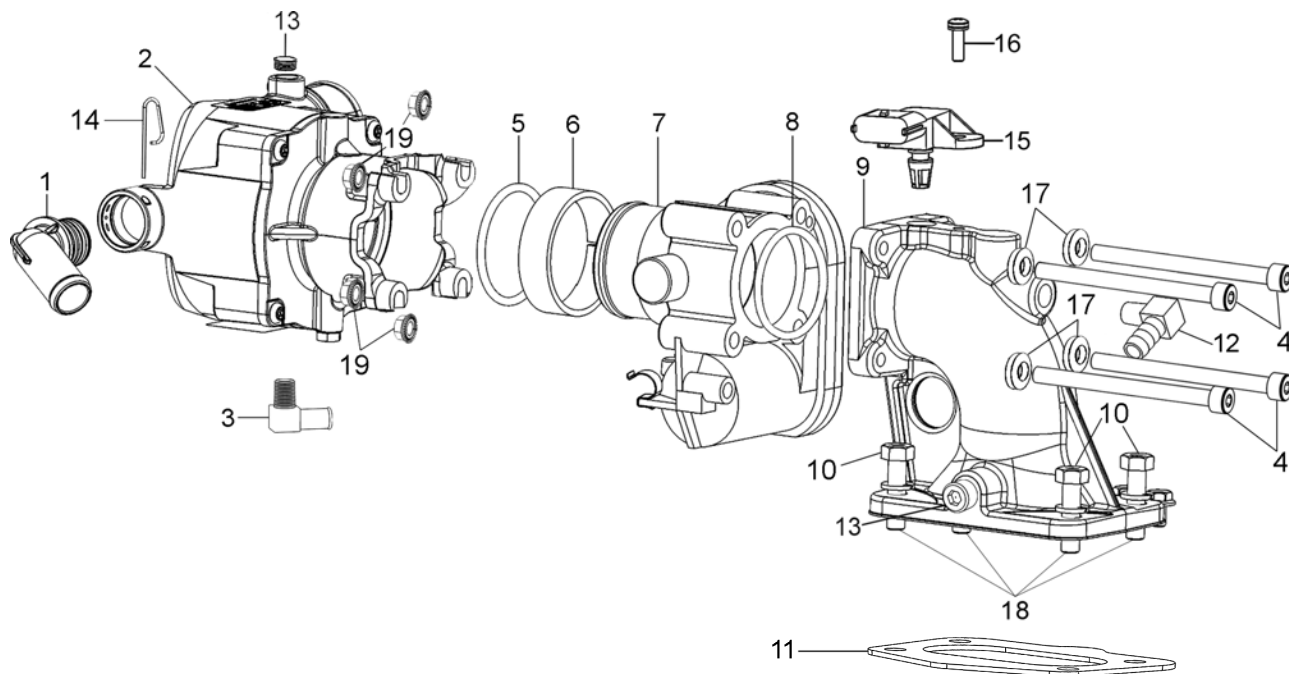
Factory service manuals, repair procedures, and TSBs must be acquired and used through the OEM parts network. IMPCO Technologies, is not able to supply these materials.

All Spectrum III ECMs are sold as un-programmed generic hardware modules. The service technician must flash the appropriate .mot file before the ECM can be used in the application. IMPCO Technologies does not supply the .mot files. These files must be acquired through the OEM service network. Service technicians must be factory authorized to access these files. If you are not able to access these files through your OEM network, you must purchase a pre-programmed ECM through your authorized OEM parts supplier. To receive Spectrum Series III training please visit our website at [impcotechnologies.com](http://impcotechnologies.com).

4.3L Toyota Lift Trucks .....	375
4.3L MCFA Lift Trucks .....	414
NMHG 2.0 & 2.2L Lift Trucks .....	440
4.3L Generic Lift Trucks .....	452
3.0L Generic Lift Trucks .....	472

## 4.3L Toyota Lift Trucks

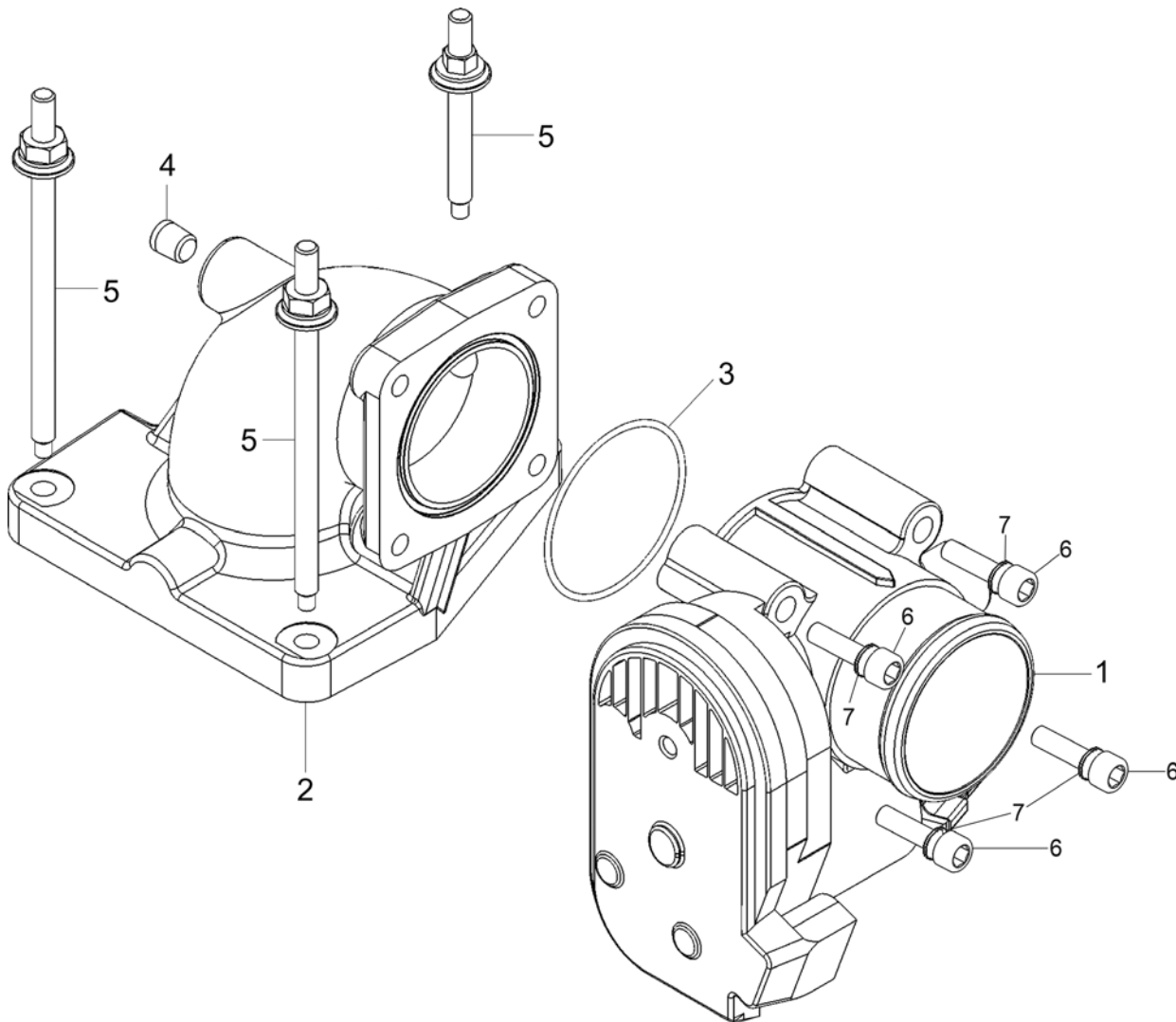
### MIXER AND THROTTLE BODY ASSEMBLY (LPG, 2007-2008)



Item #	Description	Qty	Part Number
1	Fitting, 70-degree, 3/4" OD	1	AF4-31197-001
2	Carburetor ASM, 20-150	1	FT150-30919-20-001
3	Fitting, 1/8NPT 3/8Hs 90 EL Brass	1	F4-12
4	Screw, Hex Sock Cap	4	S1-30295-0670
5*	O-Ring Nitrile	1	S3-1524-004
6	Sleeve, Plastic Bosch Throttle	1	S6-30976-001
7	Bosch Throttle Body, 40MM	1	E1312100
8*	O-Ring Nitrile	1	S3-1524-003
9	Adapter, Elbow, 4.3L LX-BOS SIII LP	1	A3-30940-001
10	Nut, Hex Flange, Serrated 5/16-24	4	35000160
11	Gasket, Carb Mounting, 2BBL, 4.3L	1	G1-25667
12	Fitting, 1/8 NPT 3/8 Hs 90 EL Brass	1	401-02
13	Plug	2	P3-46
14	Retaining Pin	1	P1-30559
15	TMAP	See Sensors Section	
16	Screw, M5x0.8x16Mn, Ph Sems	1	S1-30047-001
17	Washer, Lock	4	W1-31039-006
18	Stud, 5/16 x 1.5 LG18-24	4	35000181
19	Nut, Hex Flange, Serrated	4	N1-30876-M06

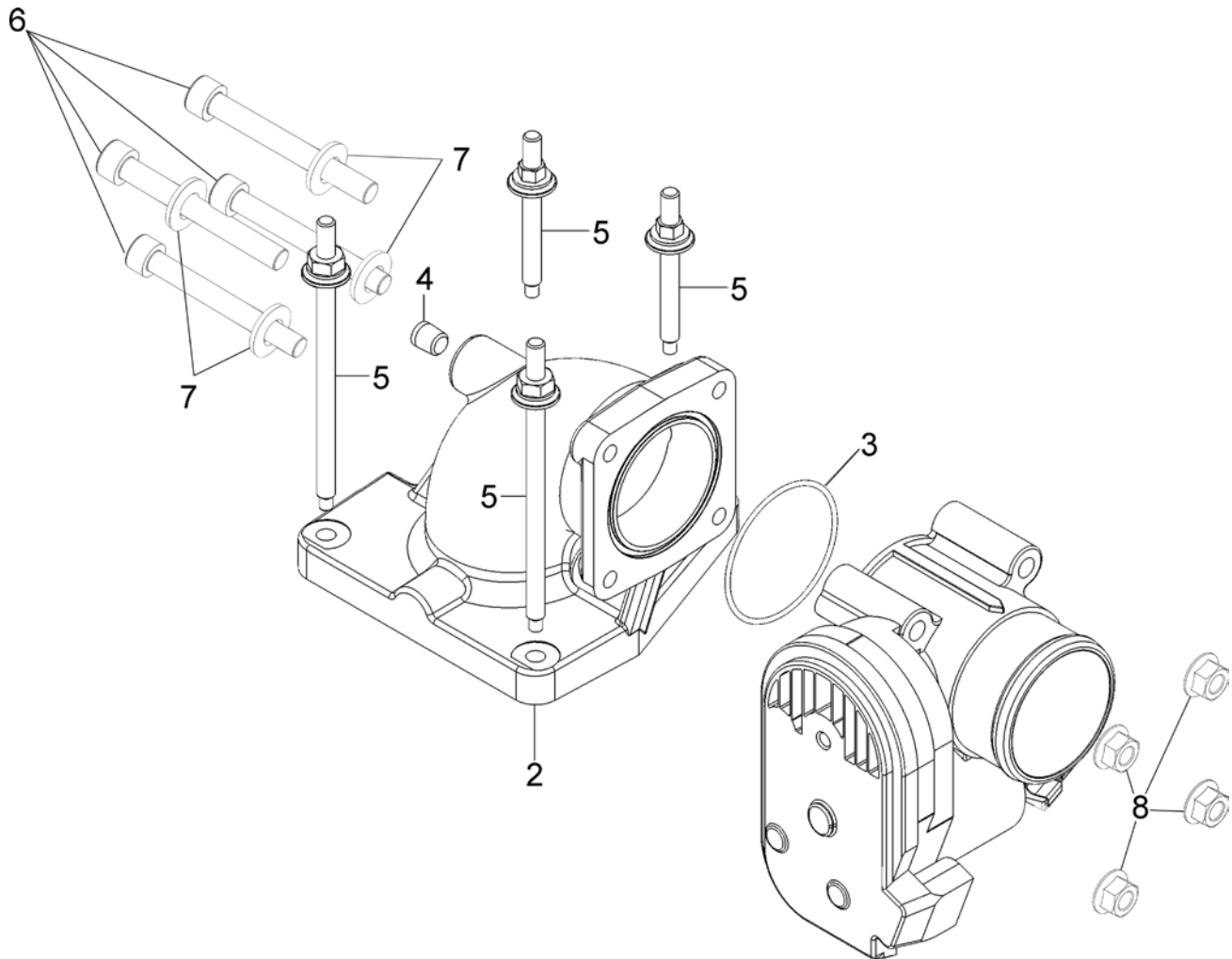
\*Included in Repair Kit RK-FT150

## ADAPTER AND THROTTLE BODY ASSEMBLY (GASOLINE, 2007)



Item#	Description	Qty	Part Number	GM Part Number
1	Bosch Throttle Body, 40MM	1	E1312100	
2	Adapter, Elbow, MFI to BOSCH DF	1	A3-30941-001	
3	O-Ring Nitrile	1	S3-1524-003	
4	Plug	1	P3-46	
5	Stud Kit	1		17113216
6	Screw, Hex Sock Cap M6 x 50MM	4	S1-30295-0650	
7	Washer, Conical Spring 6mm	4	W1-31039-006	

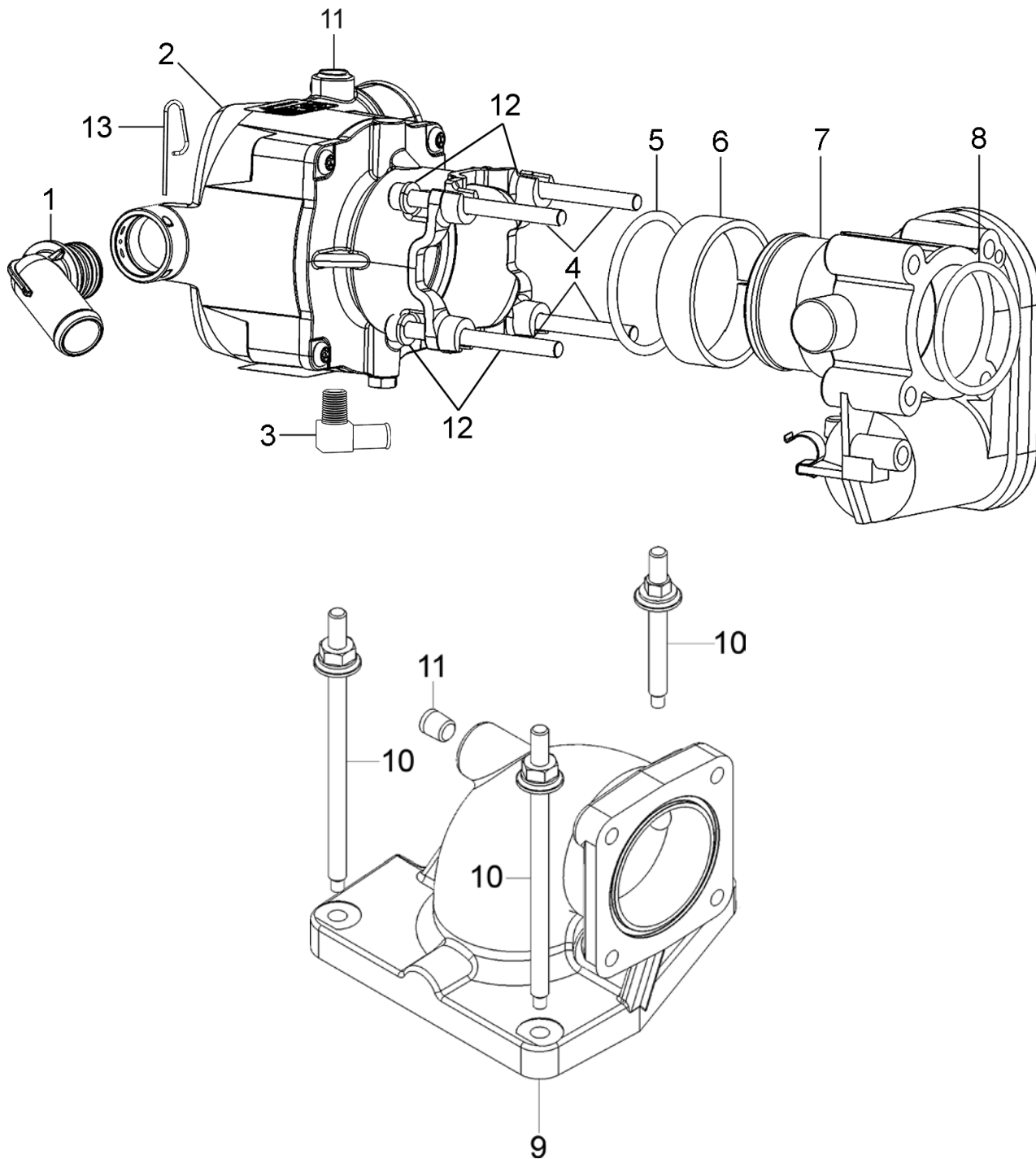
## ADAPTER AND THROTTLE BODY ASSEMBLY (GASOLINE, 2008)



Item#	Description	Qty	Part Number
1	Bosch Throttle Body, 40MM	1	E1312100
2	Adapter, Elbow, MFI to BOSCH DF	1	A3-50428-001
3	O-Ring Nitrile	1	S3-1524-003
4	Plug	1	P3-46
5	Screw, Hex Flange, M6-1.0 X 25MM	4	S1-30871-02-0625
6	Screw, Hex Sock Cap M6 x 50MM	4	S1-30295-0655
7	Washer, Conical Spring 6mm	4	W1-31039-006
8	Nut, Hex Flange, Serrated	4	N1-30876-M06



## MIXER AND THROTTLE BODY ASSEMBLY (BI-FUEL, 2007)





## 4.3L Toyota Lift Trucks

### Spectrum Series III

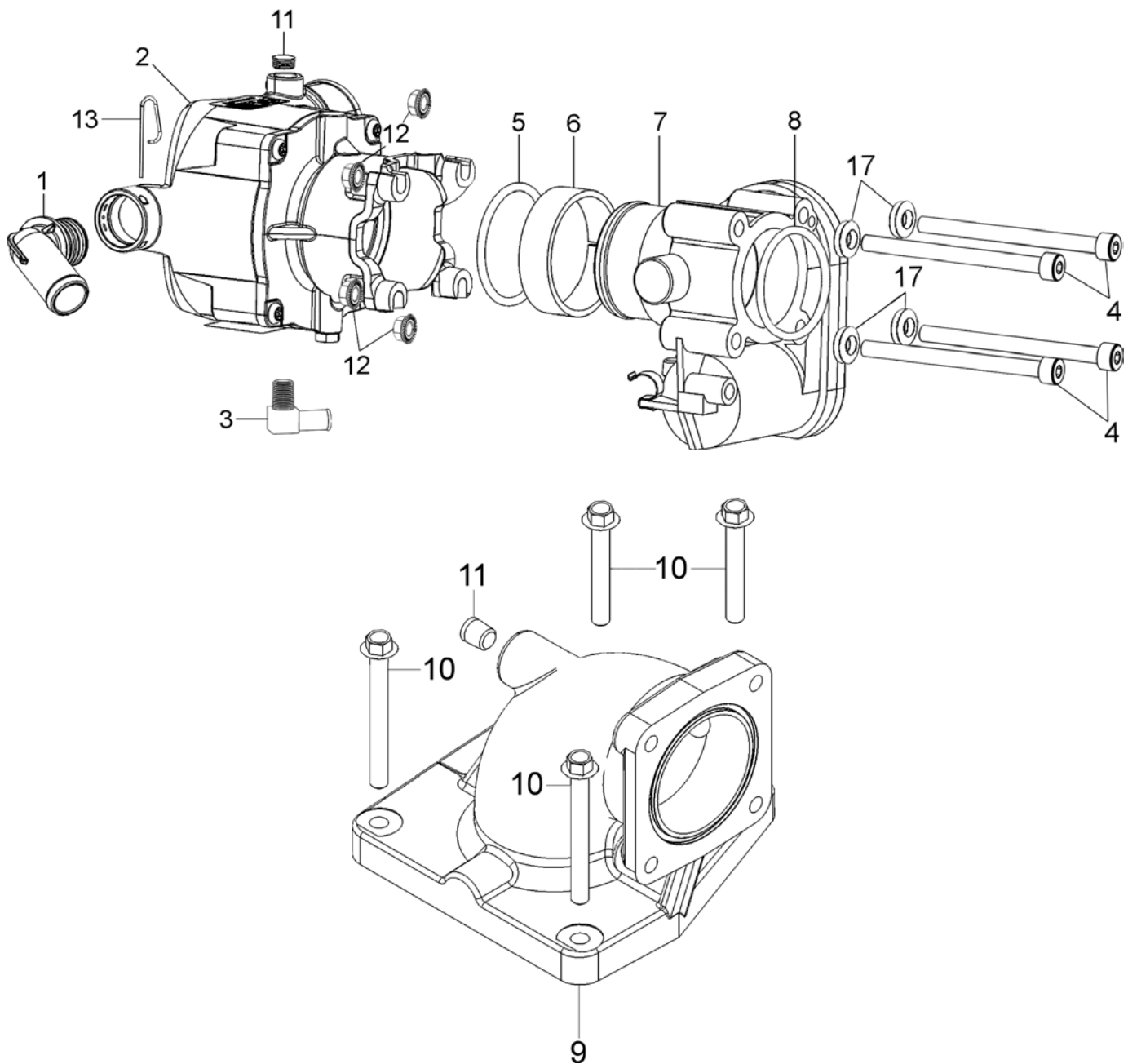


### MIXER AND THROTTLE BODY ASSEMBLY (BI-FUEL, 2007)

Item#	Description	Qty	Part Number	GM Part Number
1	Fitting, 70-degree, 3/4" OD	1	AF4-31197-001	
2	Carburetor ASM, 20-150	1	FT150-30919-20-001	
3	Fitting, 1/8NPT 3/8Hs 90El Brass	1	F4-12	
4	Screw, Hex Sock Cap	4	S1-30295-0665	
5*	O-Ring Nitrile	1	S3-1524-004	
6	Sleeve, Plastic Bosch Throttle	1	S6-30976-001	
7	Bosch Throttle Body, 40MM	1	E1312100	
8*	O-Ring Nitrile	1	S3-1524-003	
9	Adapter, Elbow, MFI To Bosch - DF	1	A3-30941-001	
10	Stud Kit (GM)	1		17113216
11	Plug 1/8 NPT Soc Head	2	P3-46	
12	Washer, Lock	4	W1-31039-006	
13	Retaining Pin	1	P1-30559	

\*Included in Repair Kit RK-FT150

### MIXER AND THROTTLE BODY ASSEMBLY (BI-FUEL, 2008)



## 4.3L Toyota Lift Trucks

### Spectrum Series III

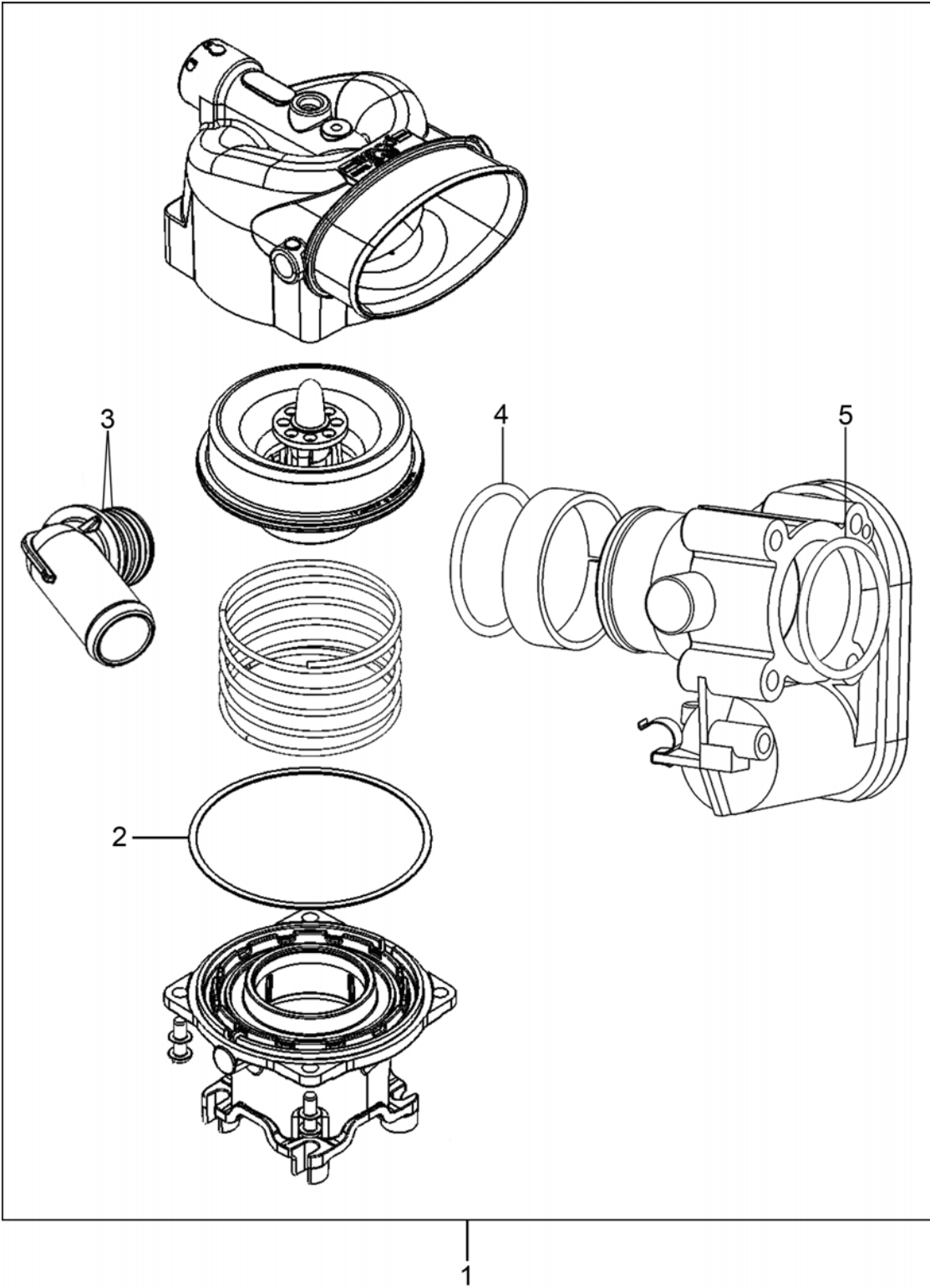


## MIXER AND THROTTLE BODY ASSEMBLY (BI-FUEL, 2008)

Item#	Description	Qty	Part Number
1	Fitting, 70-degree, 3/4" OD	1	AF4-31197-001
2	Carburetor ASM, 20-150	1	FT150-30919-20-001
3	Fitting, 1/8NPT 3/8Hs 90El Brass	1	F4-12
4	Screw, Hex Sock Cap	4	S1-30295-0670
5*	O-Ring Nitrile	1	S3-1524-004
6	Sleeve, Plastic Bosch Throttle	1	S6-30976-001
7	Bosch Throttle Body, 40MM	1	E1312100
8*	O-Ring Nitrile	1	S3-1524-003
9	Adapter, Elbow, MFI to BOSCH DF	1	A3-50428-001
10	Nut, Hex Flange, Serrated 5/16-24	4	35000160
11	Gasket, Carb Mounting, 2BBL, 4.3L	1	G1-25667
12	Fitting, 1/8 NPT 3/8 Hs 90 EL Brass	1	401-02
13	Plug	2	P3-46
14	Retaining Pin	1	P1-30559
15	TMAP	See Sensors Section	
16	Screw, M5x0.8x16Mn, Ph Sems	1	S1-30047-001
17	Washer, Lock	4	W1-31039-006
18	Stud, 5/16 x 1.5 LG18-24	4	35000181
19	Nut, Hex Flange, Serrated	4	N1-30876-M06

\*Included in Repair Kit RK-FT150

**MIXER REPAIR KIT (LPG & BI-FUEL, 2007-2008)**



## 4.3L Toyota Lift Trucks

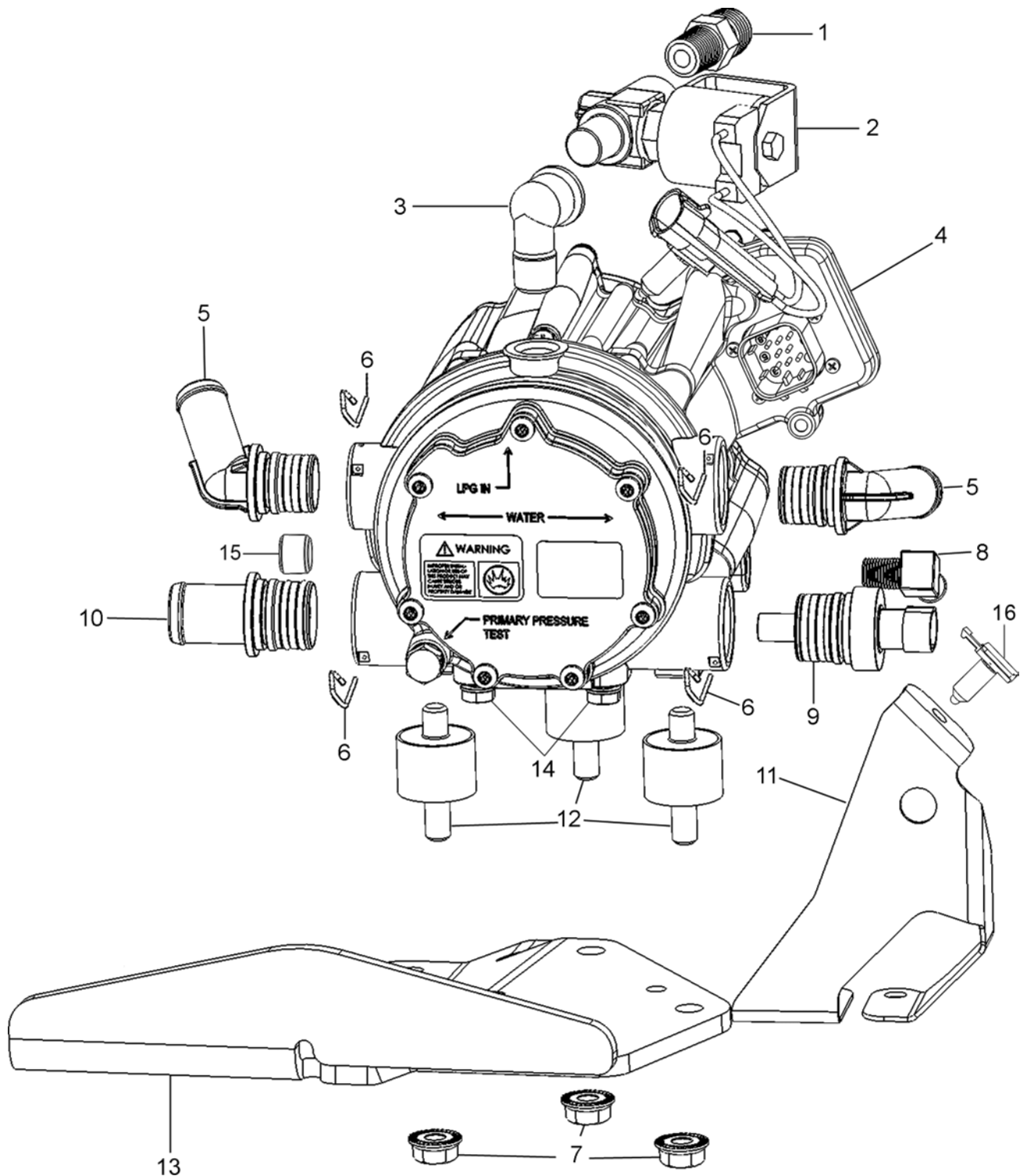
Spectrum Series III



### MIXER REPAIR KIT (LPG & BI-FUEL, 2007-2008)

Item#	Description	Qty	Part Number
1	(Includes Items 2-5)	1	RK-FT150
2	Gasket	1	G1-31252-150
3	O-Ring	2	S3-31195-001
4	O-Ring	1	S3-1524-004
5	O-Ring	1	S3-1524-003

**EPR ASSEMBLY (LPG, 2007-2008)**



## 4.3L Toyota Lift Trucks

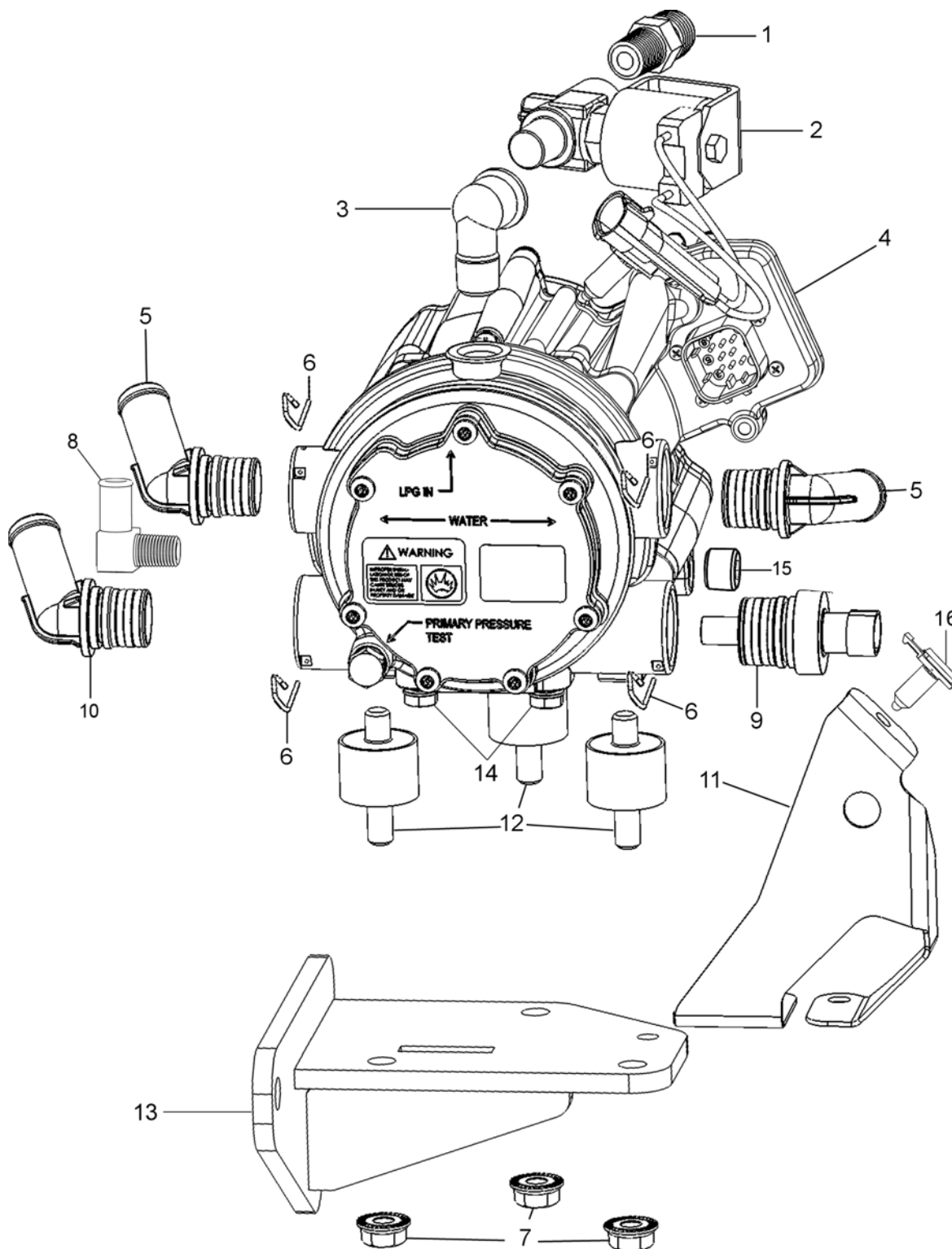
### Spectrum Series III



### EPR ASSEMBLY (LPG, 2007-2008)

Item #	Description	Qty	Part Number
1	Fitting, 1/4" NPT 3/8 Flare Brass	1	F4-14220
2	Valve, LPG Shut-Off	1	ET98-30515-001
3	Fitting, 1/4" NPT Street 90 elbow brass	1	F4-16238-1
4	Electronic Pressure Regulator, EPR	1	EPR-50388-001
5	Fitting Assembly, 70 Degree	2	AF4-30614
6	Retaining Clip	4	P1-30559
7	Nut, Hex Flange, Serrated	3	N1-30876-M08
8	Fitting, 90 Deg. 1/8" NPT X 3/8	1	F4-12
9	Temperature Sensor Ass'y	See Sensors	
10	Fitting Ass'y, Straight 3/4"	3	AF4-31193-001
11	Bracket, Lockoff Connector	1	B4-50094
12	Mount, Vibration Damping	3	R5-50080-002
13	Bracket, EPR, 4.3L Series III	1	B4-50239-001
14	Screw, Hex Head Sems, M6-1 X 10mm	2	S1-30283-0620
15	Plug, 1/8" NPT Soc Head	1	P3-46
16	Clip Attachment	1	12186353

### EPR ASSEMBLY (BI-FUEL, 2007-2008)





## 4.3L Toyota Lift Trucks

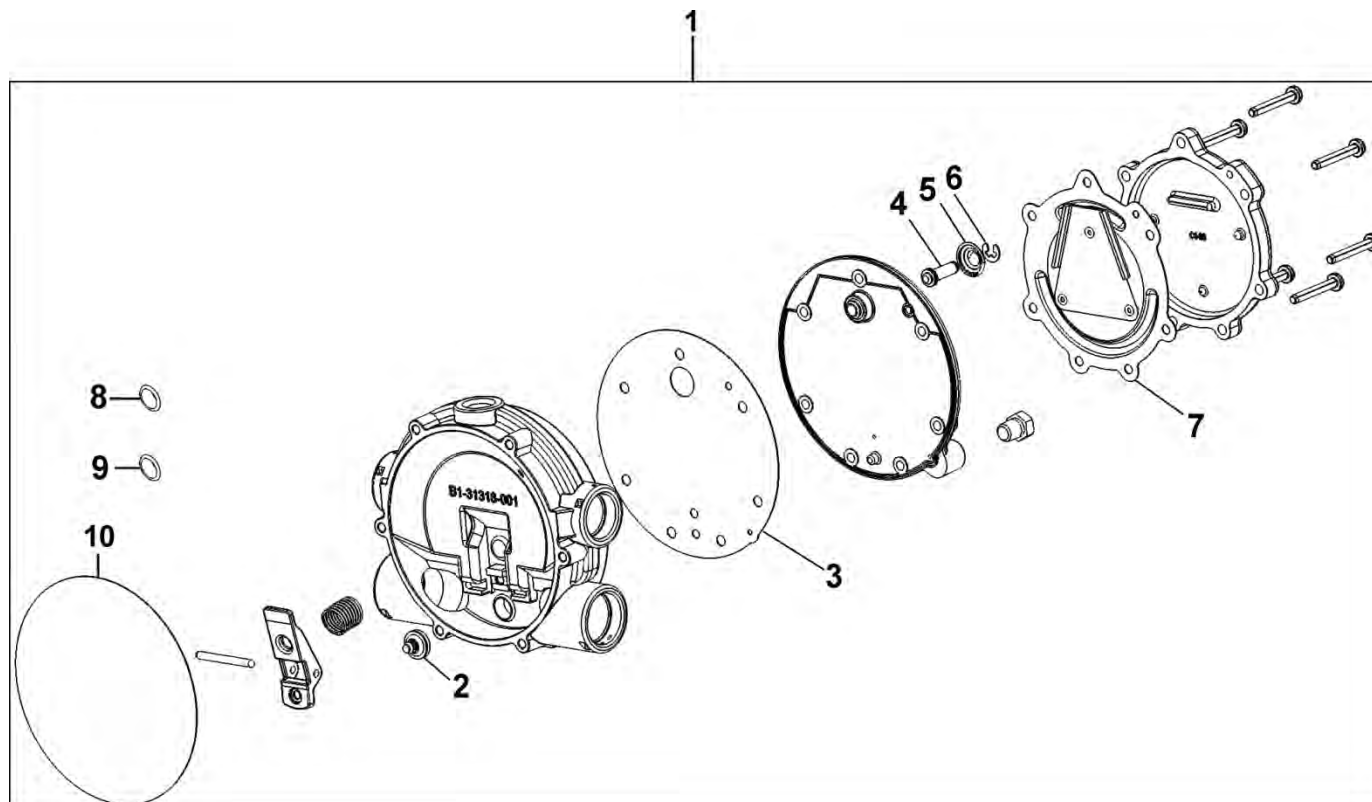
### Spectrum Series III



### EPR ASSEMBLY (BI-FUEL, 2007-2008)

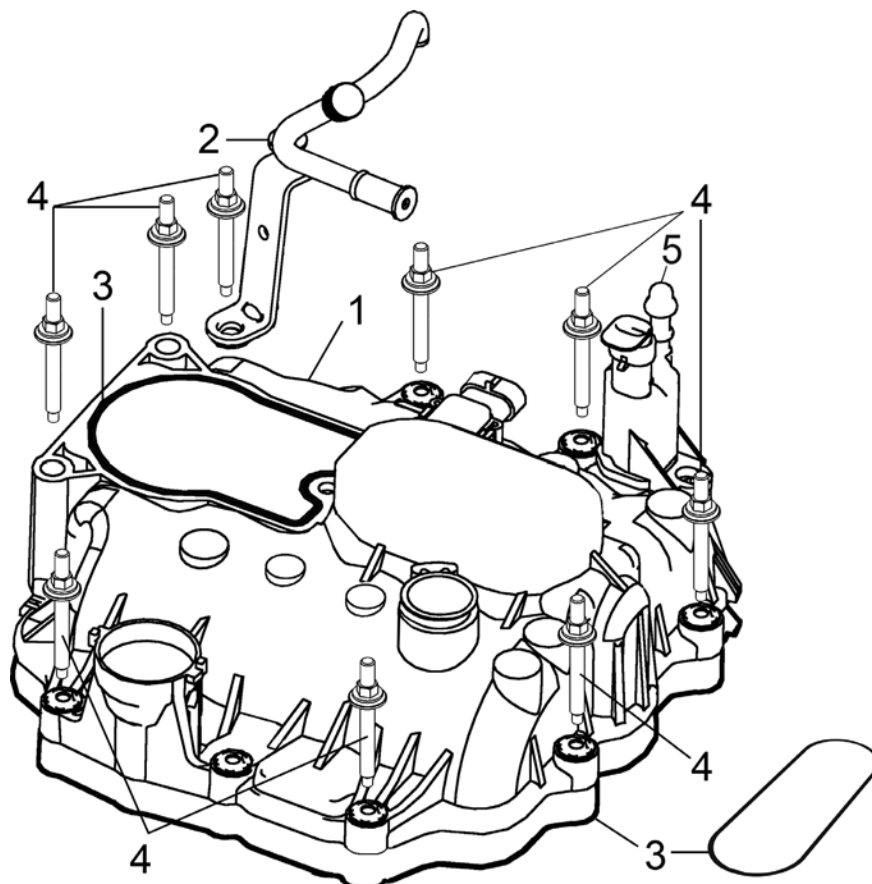
Item #	Description	Qty	Part Number
1	Fitting, ¼" NPT 3/8 Flare Brass	1	F4-14220
2	Valve, LPG Shut-Off	1	ET98-30515-001
3	Fitting, ¼" NPT Street 90 elbow brass	1	F4-50393-001
4	Electronic Pressure Regulator, EPR	1	EPR-50388-001
5	Fitting Assembly, 70 Degree	2	AF4-30614
6	Retaining Clip	4	P1-30559
7	Nut, Hex Flange, Serrated M8 x 1.25	3	N1-30876-M08
8	Fitting, 90 Deg. 1/8" NPT X 3/8	1	F4-12
9	LPG Temperature Sensor Ass'y	See Sensors	
10	Fitting Ass'y, 70 Degree ¾"	1	AF4-31197-001
11	Bracket, Lockoff Connector	1	B4-50094
12	Mount, Vibration Damping	3	R5-50080-002
13	Bracket, EPR, 4.3L Series III	1	B4-30943-001
14	Screw, Hex Head Sems, M6-1 X 10mm	2	S1-30283-0620
15	Plug, 1/8 NPT, Soc Head	1	P3-46
16	Clip, Attachment	1	12186353

## REGULATOR REPAIR KIT (LPG & BI-FUEL, 2007-2008)



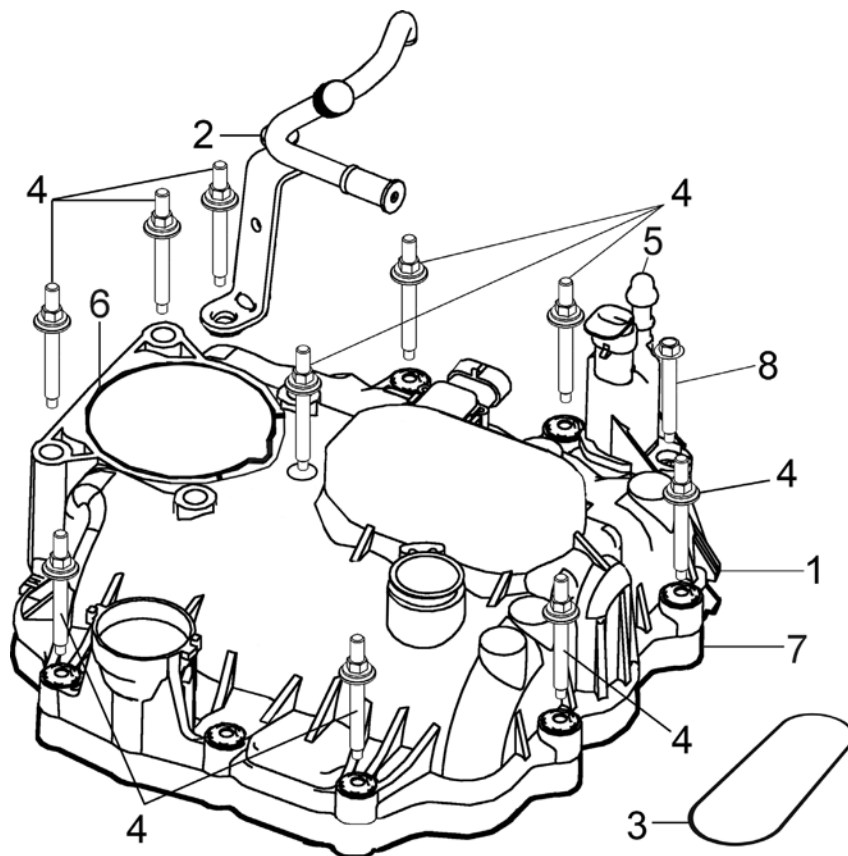
Item#	Description	Qty	Part Number
1	Kit, Minor Repair (Includes items 2-10 only)	1	RK-EPR-3
	Kit, Major (Includes All parts shown in box, assembled)	1	RK-EPR-4
2	Seat, Secondary	1	NSS
3	Gasket, Body Secondary	1	NSS
4	Pin, Primary	1	NSS
5	Spring, Primary	1	NSS
6	Clip, Primary	1	NSS
7	Diaphragm, Primary	1	NSS
8	O-ring	4	NSS
9	O-ring	4	NSS
10	Seal, Clamp Plate, EPR	1	NSS

## INTAKE MANIFOLD COVER (GASOLINE & BI-FUEL, 2007)



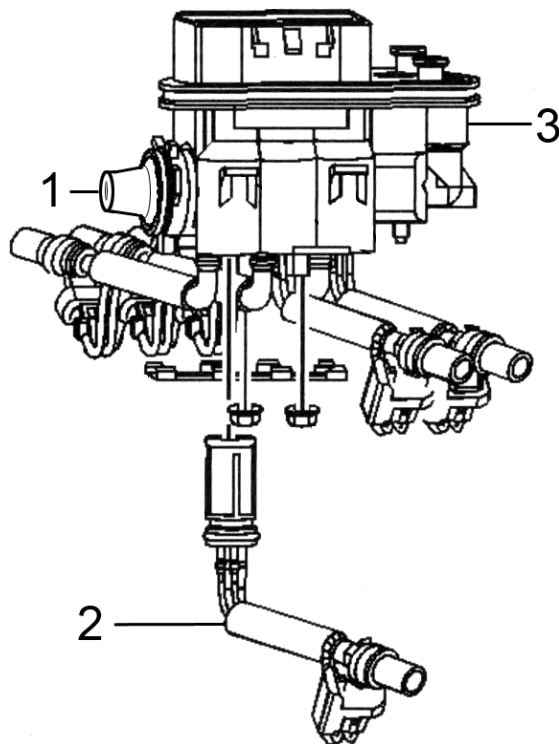
Item#	Description	Qty	Part Number	GM Part Number
1	Cover, Upper Intake Manifold	1		17113542
2	Fuel Pipe	1		89018054
3	Gasket Kit, Intake/Adapter, Manifold Cover & Fuel Metering Body	1		10108445
4	Stud Kit	1		17113216
5	Cap, Vacuum	1	C2-10760-003	

## INTAKE MANIFOLD COVER (GASOLINE & BI-FUEL, 2008)



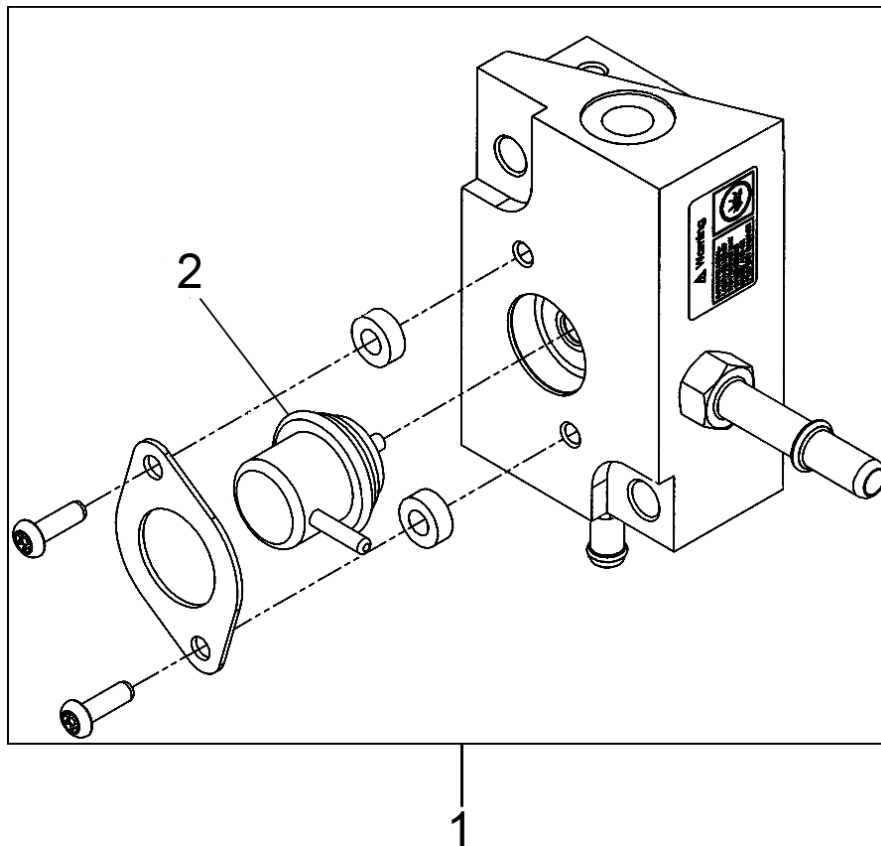
Item #	Description	Qty	Part Number	GM Part Number
1	Cover, Upper Intake Manifold	1		12595827
2	Fuel Pipe	1		89018054
3	Gasket (Includes Injector O-rings and Damper O-ring)	1		12603372
4	Stud/Bolt	10		12598042
5	Cap, Vacuum	1	C2-10760-003	
6	Gasket, Throttle Body/Adapter	1		12599019
7	Gasket, Intake Manifold Cover	1		19169262
8	Bolt	1		89017991

### FUEL METERING BODY (GASOLINE & BI-FUEL, 2007-2008)



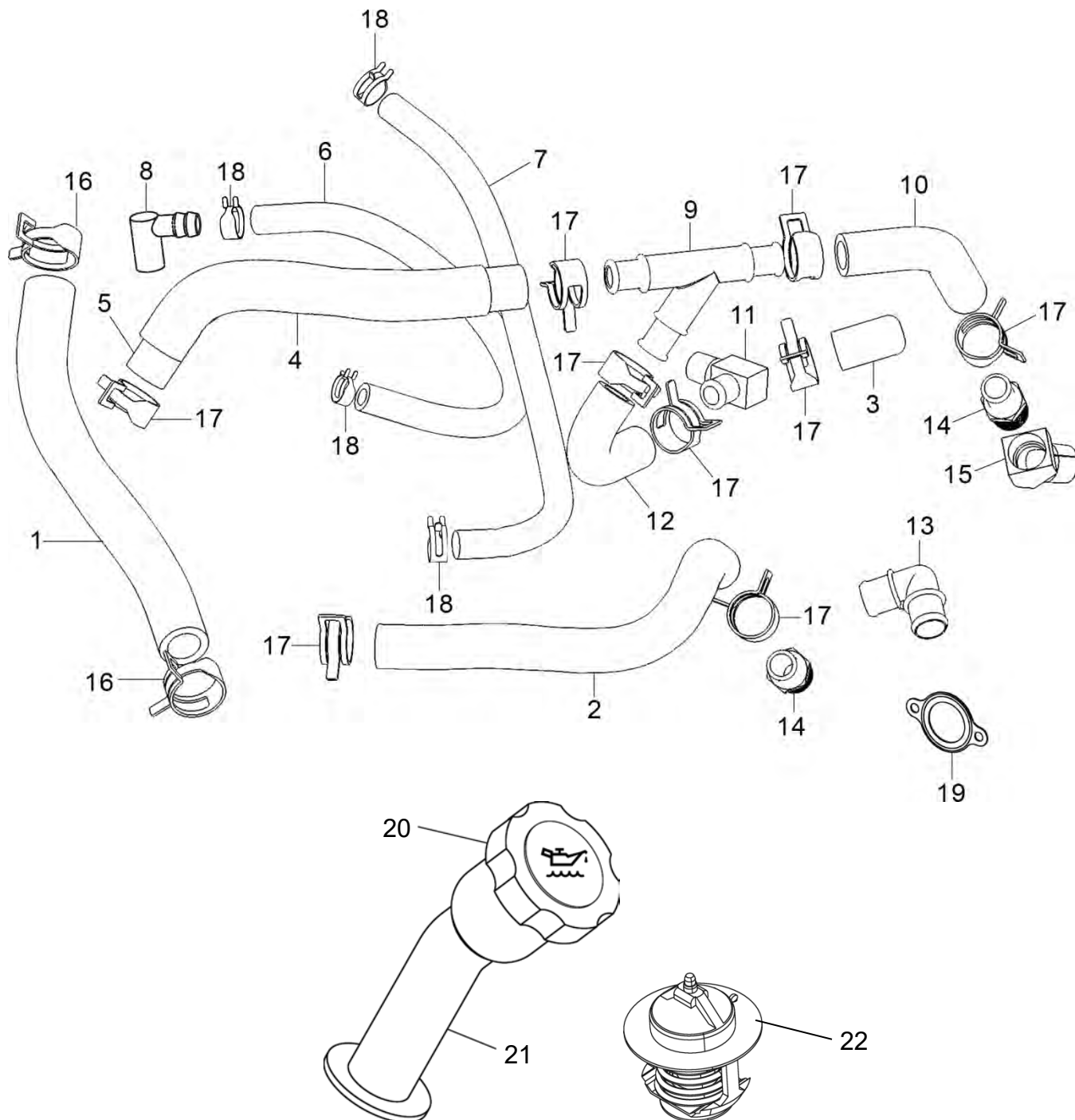
Item #	Description	Qty	GM Part Number
1	Damper	1	89017873
2	Fuel Injector	6	88894353
3	Fuel Metering Body	1	17113273

## FUEL PRESSURE REGULATOR (GASOLINE & BI-FUEL, 2007-2008)



Item #	Description	Qty	Part Number
1	Regulator, Fuel Pressure Assembly (Includes #2)	1	MD-50069
2	Regulator	1	8573C

## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (LPG, 2007-2008)



## 4.3L Toyota Lift Trucks

Spectrum Series III



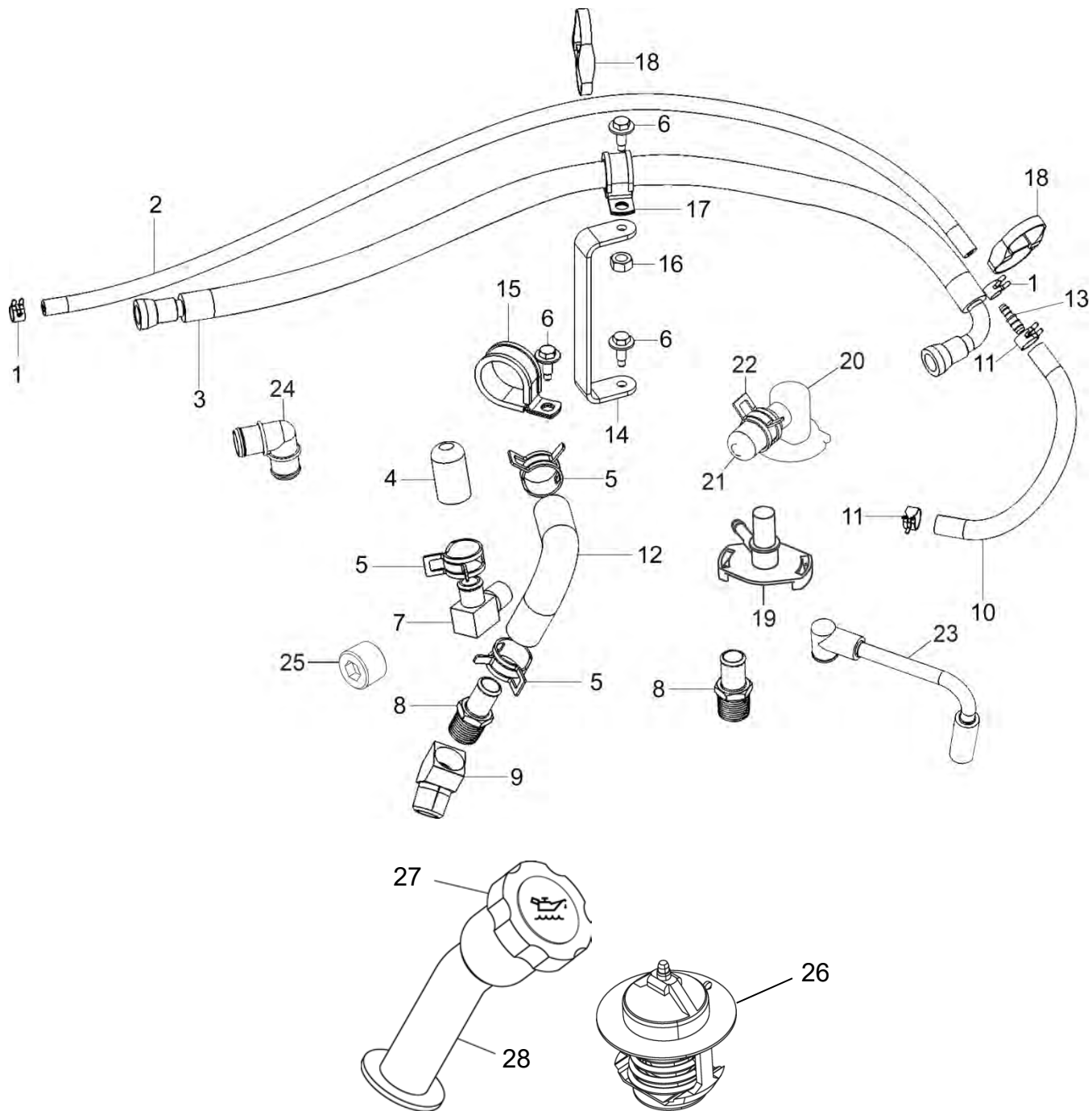
### HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (LPG, 2007-2008)

Item #	Description	Qty	Part Number	GM Part Number
1	Hose, 3/4" Fuel/Oil 11.25"L	1	H1-19253-012	
2	Hose, Coolant, 300MM	1	H1-19255-005	
3	Cap, Rubber, 5/8"	1	7110790	
4	Conduit, Round Convoluted	1	NSS	
5	Hose, 5/8" Coolant 230mm	1	H1-19255-020	
6	Hose, 3/8" ID Fuel /Oil 14.75"	1	H1-19253-001	
7	Hose, 3/8" ID Fuel/Oil 17.25"	1	H1-19253-019	
8	Fitting, Elbow 90 degree PCV	1	F4-30912-001	
9	Fitting, 3/4" Water 5/8" Nylon	1	F4-43	
10	Hose, 5/8" ID Coolant Formed	1	H1-50244-001	
11	Fitting, 3/8" NPT 5/8" 90 Elbow Nylon	1	F4-17	
12	Hose, 5/8" ID Coolant Formed	1	H1-50518-001	
13	Elbow, Vent	1		1263193
14	Fitting, 1/2" NPT 5/8" NIP Brass	2	F4-17920	
15	Fitting 45 Street Elbow	1	80082	
16	Clamp, Hose	2	C2-16664-4	
17	Clamp, Hose, .88 OD Blk	9	C2-16664-2	
18	Clamp, Hose, .69 OD	4	C2-16664-1	
19	Gasket, Thermostat Housing	1		10105135
20	Oil Fill Cap	1		12573336
21	Oil Fill Tube Extension	1		12570623
22	Thermostat	1		10202456

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



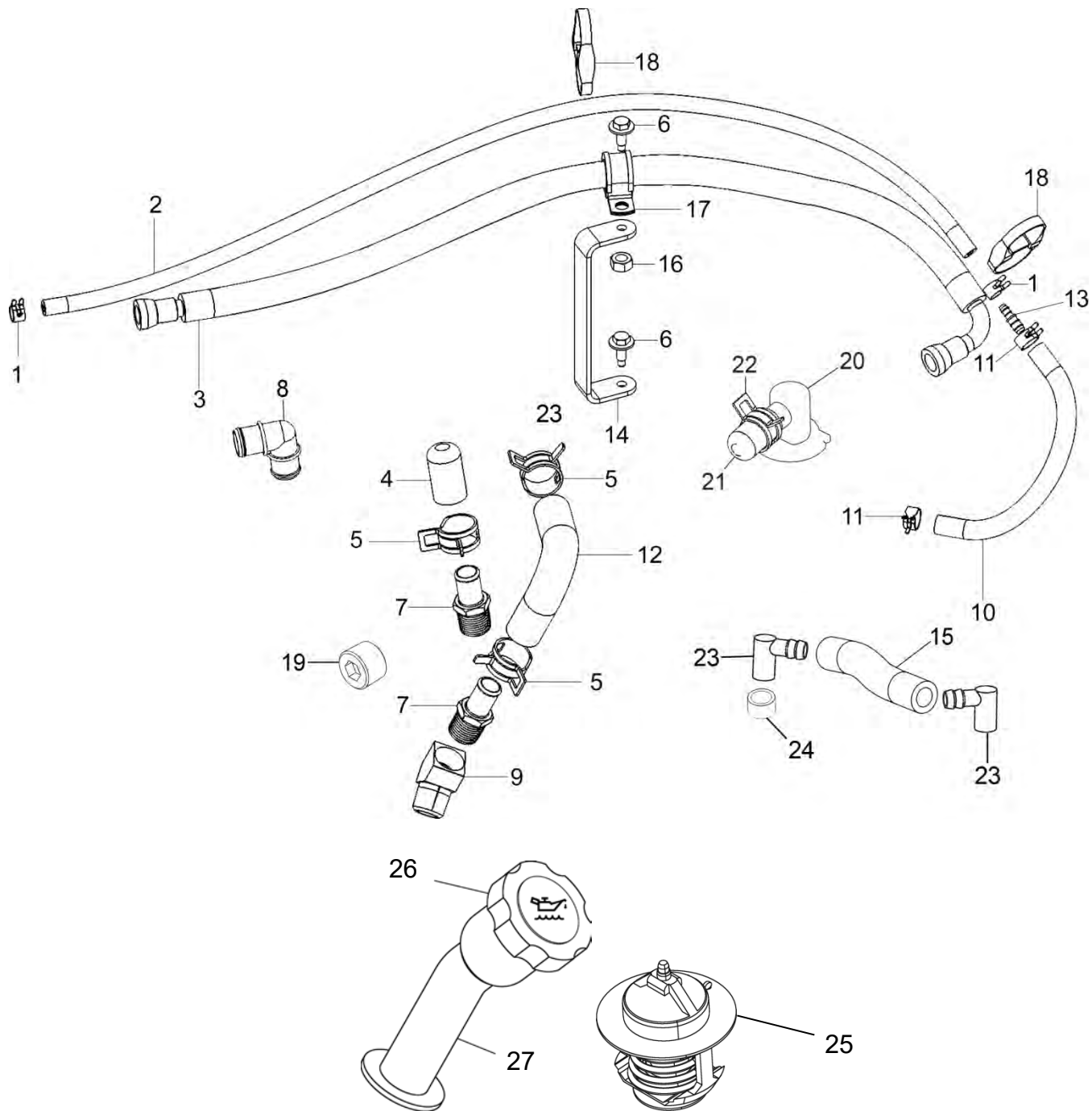
## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (GASOLINE, 2007)



**HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (GASOLINE, 2007)**

Item #	Description	Qty	Part Number	GM Part Number
1	Clamp, Spring, Green 7/16 O.D. Hose	2	C2-16664-7	
2	Hose, Fuel 1/4" ID	1	H1-19253-017	
3	Hose, Fuel 3/16" ID	1	AH1-50062-001	
4	Cap, Rubber, 5/8"	1	7110790	
5	Clamp, Hose	3	C2-16664-2	
6	Screw, Hex Hd Con Sems M6 X 1.0 X 20	3	S1-30283-0620	
7	Fitting, Water, 3/8" NPT X 5/8 Hose 90°	1	F4-17	
8	Fitting, 1/2NPT 5/8hs Nip Brass	2	F4-17920	
9	Fitting Brass, Elbow 45 deg x 1/2P	1	80082	
10	Hose, Fuel	1	H1-19253-018	
11	Clamp, Hose-.5 in O.D. Nominal	2	C2-16664-8	
12	Hose, Coolant, Cut-4.75 In	1	H1-19255-021	
13	Adapter, Hose	1	F4-14382	
14	Bracket, Fuel Line Support	1	B4-50398-001	
15	Clamp, Loop Cushioned, 5/16" Bolt X 1.00" I.D.	2	C2-30880-018	
16	Nut, Hex M6 x 1.00	1	97220000	
17	P-Clamp 5/8" Support	1	C2-30880-010	
18	Tie Wrap, Double Hose Clamp	2	T8-14109-2	
19	Adapter, PCV, 4.3L	1		12552750
20	Fitting, Intake 13mm	1	F4-50150	
21	Cap, Vacuum .46 ID X .68 OD X .75 LG	1	C2-30500-003	
22	Clamp, Hose	1	C2-16664-3	
23	Tube, PVC	1	T1-50148	
24	Elbow, GM Vent	1		1263193
25	Plug, 3/8" NPT, Soc Head Brass	1	P3-12	
26	Thermostat	1		10202456
27	Oil Fill Cap	1		12573336
28	Oil Fill Tube Extension	1		12570623

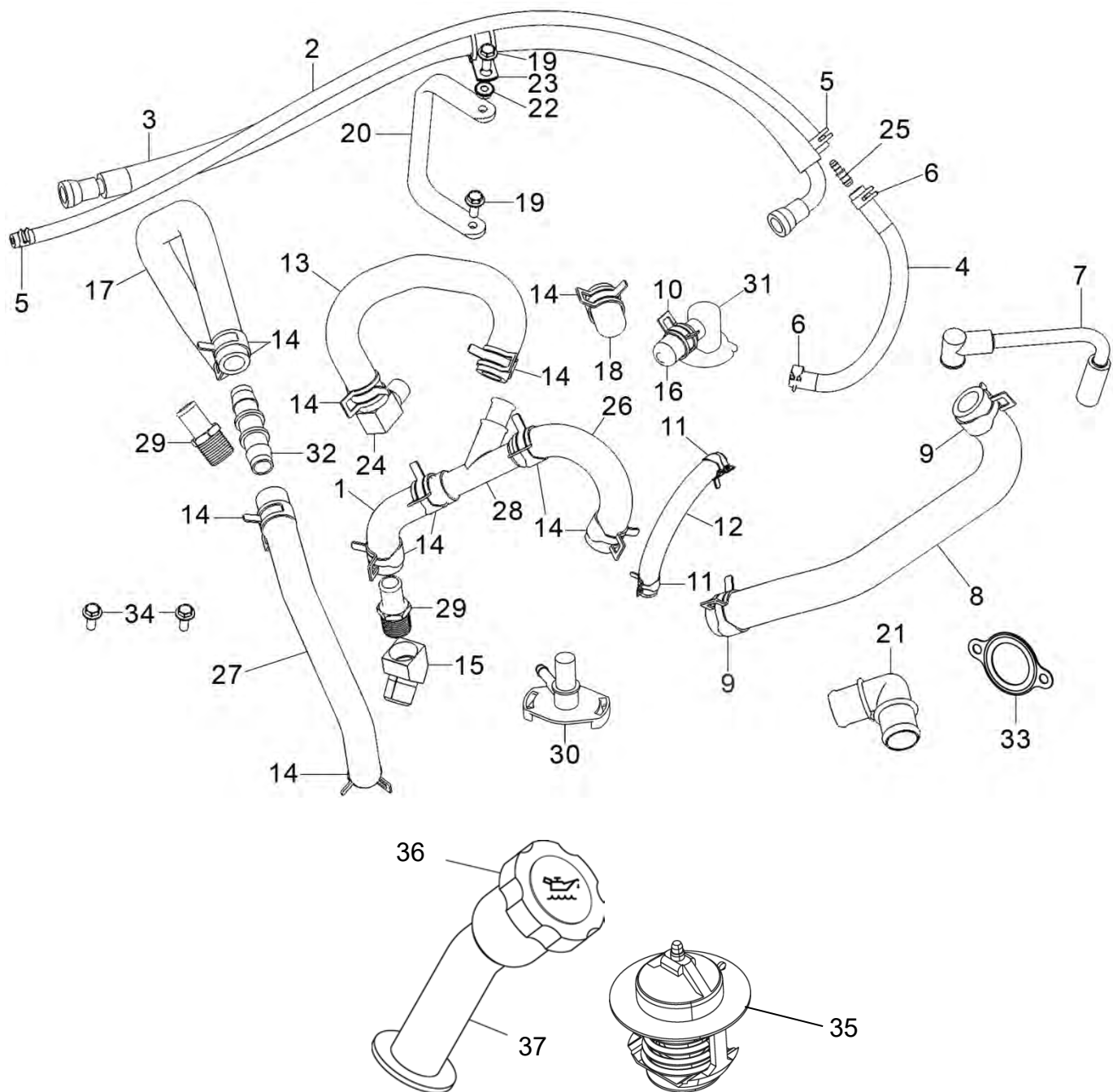
## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (GASOLINE, 2008)



**HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (GASOLINE, 2008)**

Item#	Description	Qty	Part Number	GM Part Number
1	Clamp, Spring, Green 7/16 O.D. Hose	2	C2-16664-7	
2	Hose, 3/16" ID Fuel/Oil 28.75"L	1	H1-19253-017	
3	Hose, Fuel	1	AH1-50062-001	
4	Cap, Rubber, 5/8"	1	7110790	
5	Clamp, Hose	3	C2-16664-2	
6	Screw, Hex Hd Con Sems M6 X 16mm	2	S1-30871-02-0616	
7	Fitting, 1/2 NPT 5/8 Hose Nip Brass	2	F4-17920	
8	Elbow, GM Vent	1		1263193
9	Fitting Brass, Elbow 45 deg	1	80082	
10	Hose, Fuel	1	H1-19253-018	
11	Clamp, Hose -.5 in O.D. Nominal	2	C2-16664-8	
12	Hose, Coolant, Cut - 4.75 In	1	H1-19255-021	
13	Fitting, 1/4 Hose 11/64 Hose Reducer Brass	1	F4-14382	
14	Bracket, Fuel Line Support	1	B4-50398-001	
15	Hose, Fuel 3/8 ID 2.88" L	1	H1-19253-022	
16	Nut, Hex Serrated	1	N1-30876-M06	
17	P-Clamp 5/8" Support	1	C2-30880-010	
18	Tie Wrap, Double Hose Clamp	2	T8-14109-2	
19	Plug, 3/8" NPT, Soc Head Brass	1	P3-12	
20	Fitting, Intake 13mm	1	F4-50150	
21	Cap, Vacuum 1/2" ID	1	C2-30500-003	
22	Clamp, Hose	1	C2-16664-3	
23	Fitting, Elbow 90-degree PCV	2	F4-30912-001	
24	Spacer	1	T1-51265-001	
25	Thermostat	1		10202456
26	Oil Fill Cap	1		12573336
27	Oil Fill Tube Extension	1		12570623

## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (BI-FUEL, 2007)

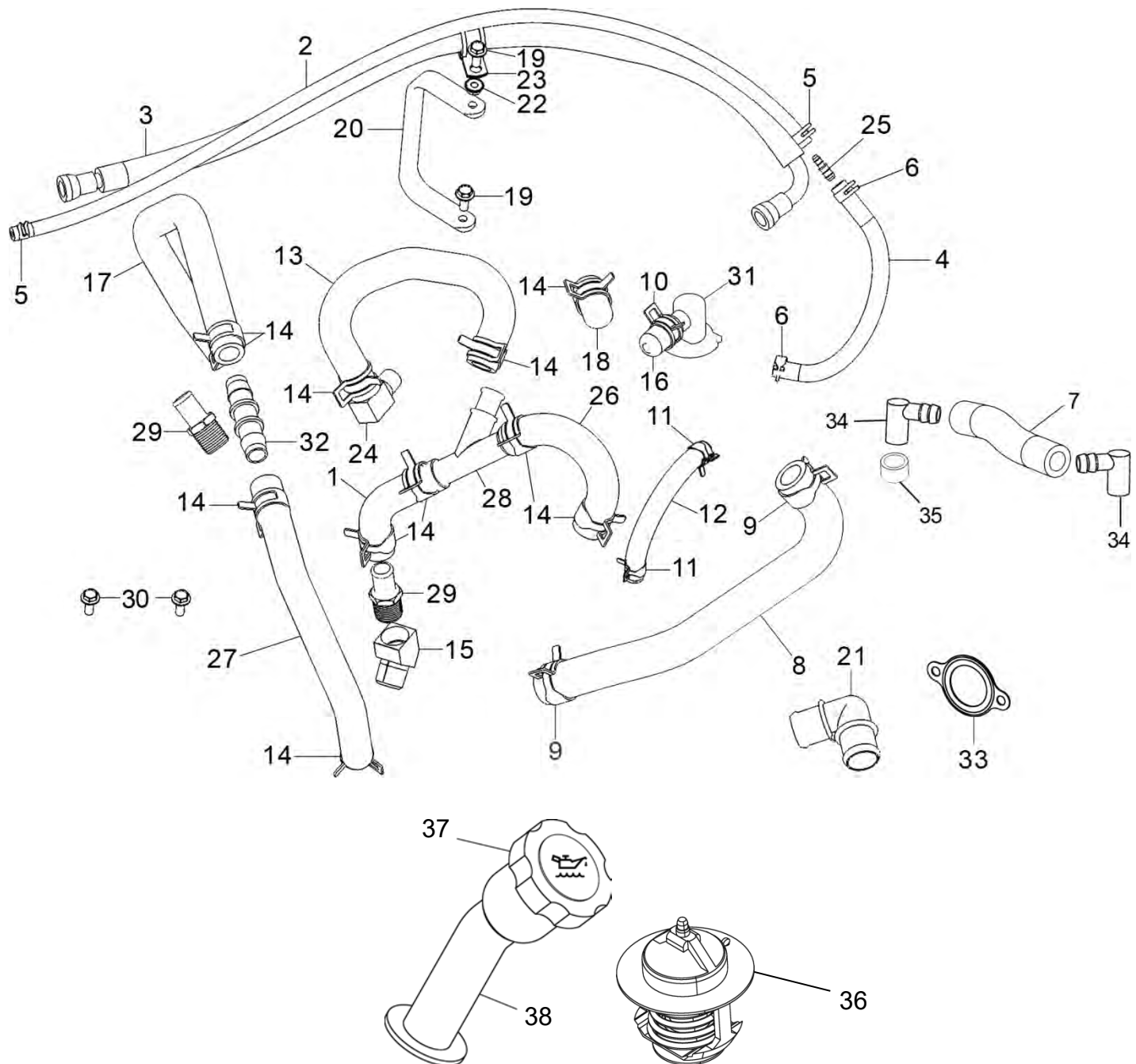


**HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (BI-FUEL, 2007)**

Item #	Description	Qty	Part Number	GM Part Number
1	Coolant Hose, EPR to WP	1	H1-50245-001	
2	Hose, 3/16" ID 28.75"	1	H1-19253-017	
3	Fuel Line, Pressure Regulator Intake	1	AH1-50062-001	
4	Hose, Fuel 1/4" dia. 7.88" L	1	H1-19253-018	
5	Clamp	2	C2-16664-7	
6	Clamp, Hose -.5 In O.D. Nominal	2	C2-16664-8	
7	Tube, PVC, 4.3l	1	T1-50148	
8	Hose, Fuel, Formed 3/4"	1	H1-50176-001	
9	Clamp, Hose	2	C2-16664-4	
10	Clamp, Hose	1	C2-16664-3	
11	Clamp, Hose	2	C2-16664-1	
12	Hose, Fuel/Oil 3/8" 5.25"L	1	H1-19253-013	
13	Hose, Coolant, Formed	1	H1-50594-001	
14	Clamp, Hose	11	C2-16664-2	
15	Fitting, Br, EL 45 Deg X 1/2P, Straight	1	80082	
16	Cap, Vacuum .5"	1	C2-30500-003	
17	Hose, Coolant Intake	1	H1-50248-001	
18	Cap, Rubber, 5/8" (Thermostat Housing)	1	7110790	
19	Screw, Hex Hd Con Sems M6 X 16 mm	2	S1-30871-02-0616	
20	Bracket, Fuel Line Support	1	B4-50398-001	
21	Elbow, Vent GM Rb	1		1263193
22	Nut, Hex Flange Serrated	1	N1-30876-M06	
23	P-Clamp, 5/8" Support	1	C2-30880-010	
24	Fitting, Water, 3/8" NPT X 5/8 Hose 90°	1	F4-17	
25	Fitting 1/4 HS 11/64H Reducer, brass	1	F4-14382	
26	Hose, 5/8" Coolant, formed	1	H1-50593-001	
27	Hose, Formed- Coolant	1	H1-50246-001	
28	Fitting, 3/4Hs Water Y 5/8 Nyl	1	F4-43	
29	Fitting 1/2 NPT 5/8" Nip Brass	1	F4-17920	
30	Adapter, PCV, 4.3L	1		12552750
31	Fitting, Intake, 4.3L, 13mm	1	F4-50150	
32	Adapter	1	A4-50082-001	
33	Gasket, Water Outlet	1		10105135
34	Screw, Hex, Flange M18 x 1.25 x 25	1	S1-30871-02-0825	
35	Thermostat	1		10202456
36	Oil Fill Cap	1		12573336
37	Oil Fill Tube Extension	1		12570623



## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (BI-FUEL, 2008)

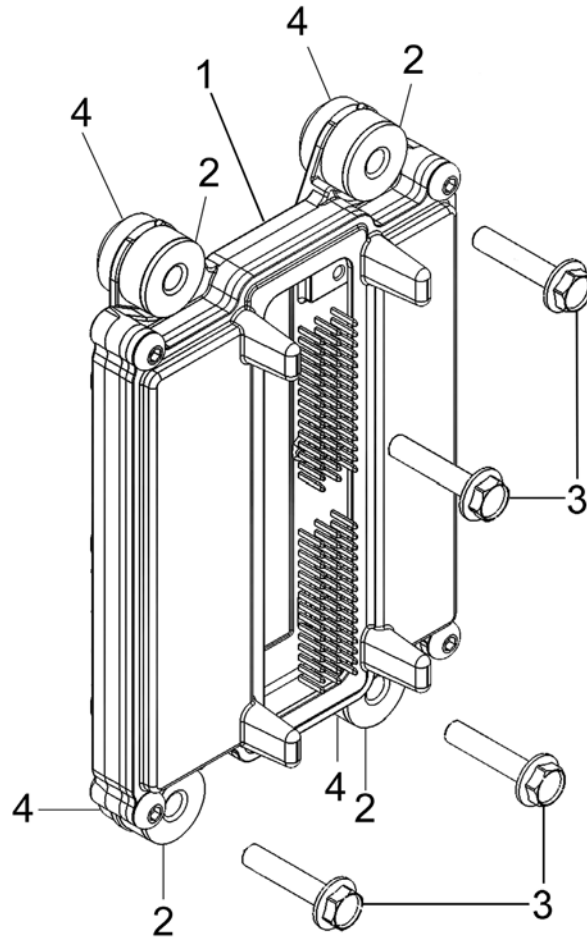


**HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (BI-FUEL, 2008)**

Item #	Description	Qty	Part Number	GM Part Number
1	Coolant Hose, EPR to WP	1	H1-50245-001	
2	Hose, 3/16" ID 28.75"	1	H1-19253-017	
3	Fuel Line, Pressure Regulator Intake	1	AH1-50062-001	
4	Hose, Fuel ¼" dia. 7.88" L	1	H1-19253-018	
5	Clamp	2	C2-16664-7	
6	Clamp, Hose -.5 In O.D. Nominal	1	C2-16664-8	
7	Hose, Fuel 3/8 ID 2.88"L	1	H1-19253-022	
8	Hose, Fuel, Formed ¾"	1	H1-50176-001	
9	Clamp, Hose	2	C2-16664-4	
10	Clamp, Hose	1	C2-16664-3	
11	Clamp, Hose	2	C2-16664-1	
12	Hose, Fuel/Oil 3/8" 5.25"L	1	H1-19253-013	
13	Hose, Coolant, Formed	1	H1-50594-001	
14	Clamp, Hose	11	C2-16664-2	
15	Fitting, Br, El 45 Deg X 1/2P, Strt	1	80082	
16	Cap, Vacuum .5"	1	C2-30500-003	
17	Hose, Coolant Intake	1	H1-50248-001	
18	Cap, Rubber, 5/8" (Thermostat Housing)	1	7110790	
19	Screw, Hex Hd Con Sems M6 X 16 mm	2	S1-30871-02-0616	
20	Bracket, Fuel Line Support	1	B4-50398-001	
21	Elbow, Vent GM Rb	1		1263193
22	Nut, Hex Flange Serrated	1	N1-30876-M06	
23	P-Clamp, 5/8" Support	1	C2-30880-010	
24	Fitting, Water, 3/8" NPT X 5/8 Hose 90°	1	F4-17	
25	Fitting ¼ HS 11/64H Reducer, brass	1	F4-14382	
26	Hose, 5/8" Coolant, formed	1	H1-50593-001	
27	Hose, Formed- Coolant	1	H1-50246-001	
28	Fitting, 3/4Hs Water Y 5/8 Nyl	1	F4-43	
29	Fitting ½ NPT 5/8" Nip Brass	1	F4-17920	
30	Screw, Hex, Flange M18 x 1.25 x 25	2	S1-30871-02-0825	
31	Fitting, Intake, 4.3L, 13mm	1	F4-50150	
32	Adapter	1	A4-50082-001	
33	Gasket, Water Outlet	1		10105135
34	Fitting, Elbow 90-degree PCV	2	F4-30912-001	
35	Spacer	1	T1-51265-001	
36	Thermostat	1		10202456
37	Oil Fill Cap	1		12573336
38	Oil Fill Tube Extension	1		12570623



## ENGINE CONTROL MODULE (LPG, GASOLINE & BI-FUEL, 2007-2008)

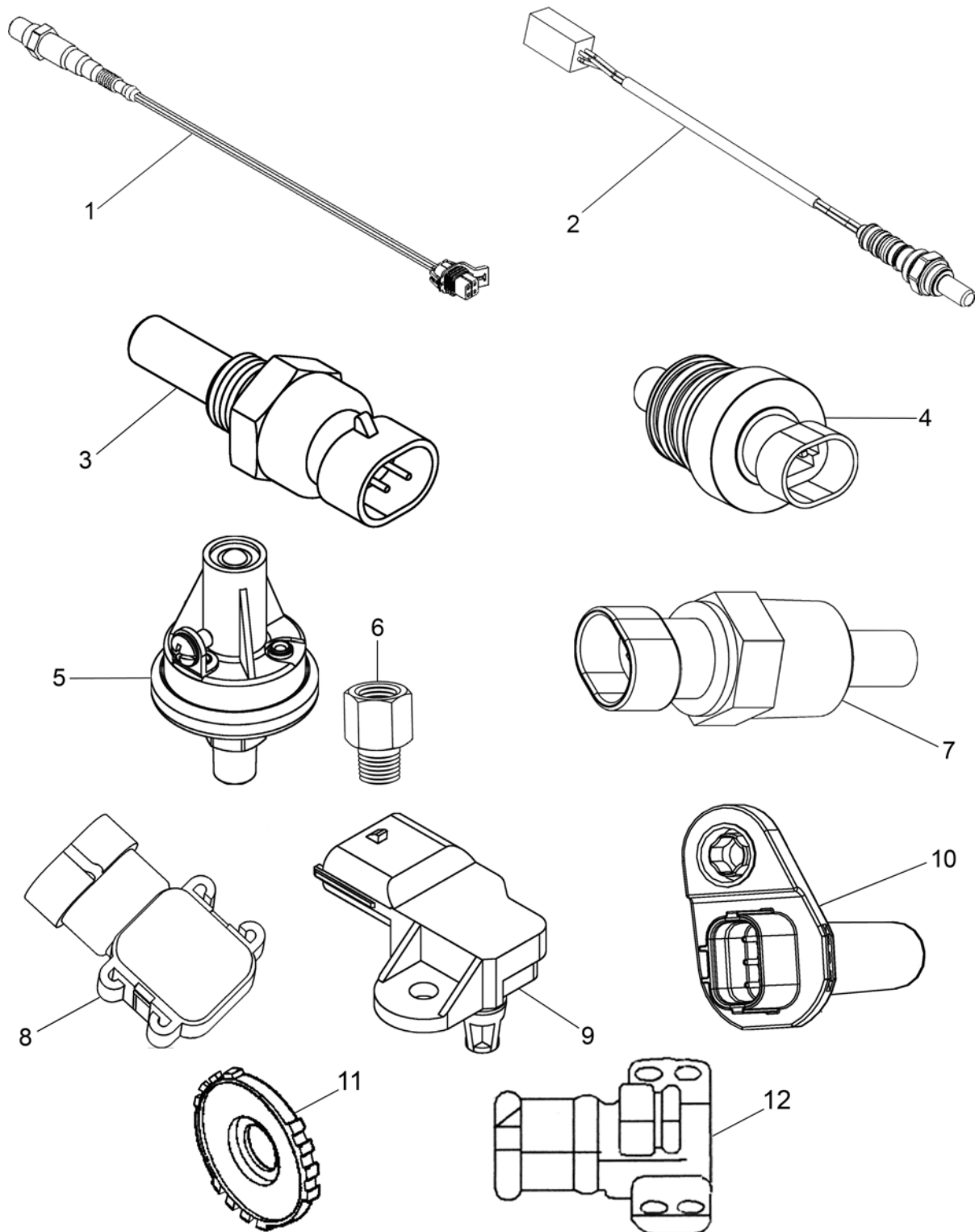


Item #	Description	Qty.	Part Number
1	Engine Control Module, Blank (no software or calibration) LPG	1	E1687002
	Engine Control Module, Blank (no software or calibration) Bi-Fuel & Gasoline	1	E1687001
2	Spacer	4	E1691001
3	Screw	4	S1-30871-02- 0630
4	Vibration Isolator	4	E1691002

All ECMs are sold as un-programmed generic hardware modules. The service technician must flash the appropriate .mot file before the ECM can be used in the application. IMPCO Technologies does not supply the .mot files. These files must be acquired through the OEM service network. Service technicians must be factory authorized to access these files. If you are not able to access these files through your OEM network, you must purchase a pre-programmed ECM through your authorized OEM parts supplier. To receive Spectrum Series III training please visit our website at [www.impcotechnologies.com](http://www.impcotechnologies.com)

Note: Where applicable, any product underlined and in **red text** is obsolete. Visit page 6 for support.

#### SENSORS (LPG, GASOLINE & BI-FUEL, 2007-2008)



## 4.3L Toyota Lift Trucks

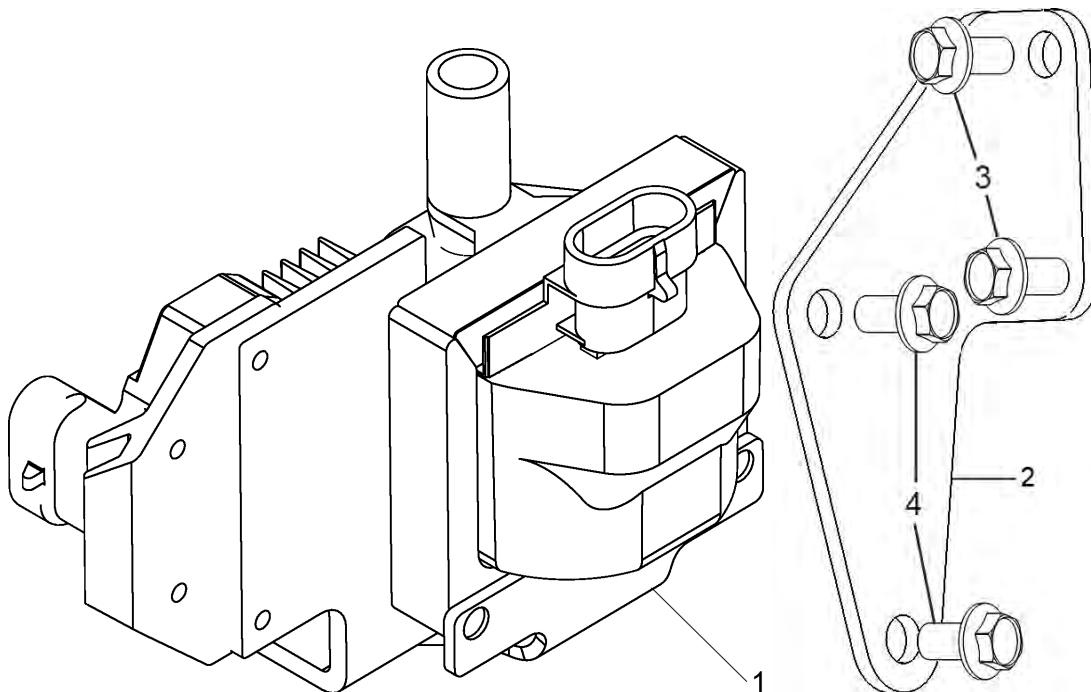
### Spectrum Series III



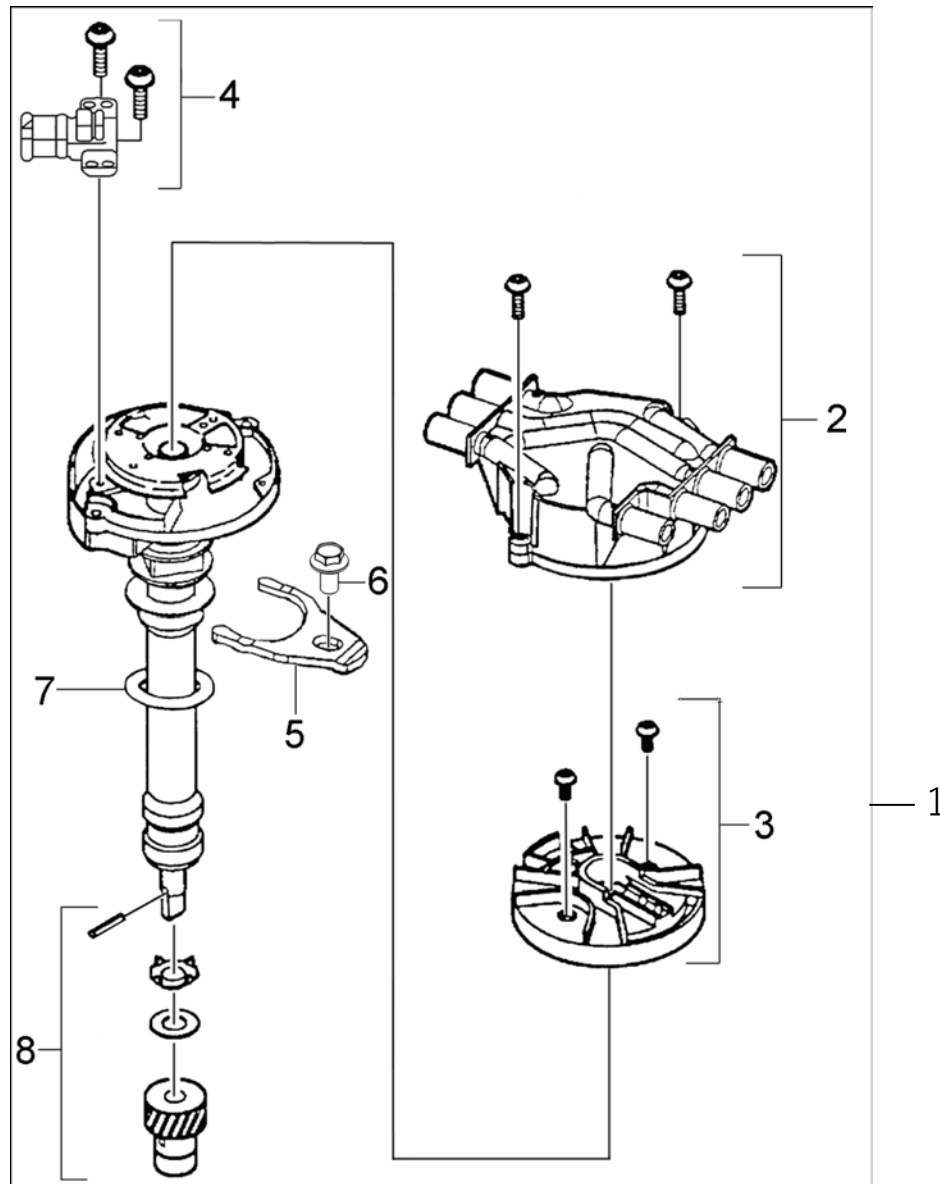
### SENSORS (LPG, GASOLINE & BI-FUEL, 2007-2008)

Item #	Description	Fuel	Year	Qty	Part Number	GM Part Number
1	HEGO, Post Catalyst	ALL	2007-2008	1	S8-50328-001	
2	HEGO, Pre-Catalyst	ALL	2007-2008	1	7176700	
3	Sensor, Air Temp	Gasoline, Bi-Fuel	2007-2008	1	S8-30908-001	
4	LPG Temp Sensor	LPG, Bi-Fuel	2007-2008	1	AS8-31353-001	
5	Oil Pressure Sender	ALL	2007-2008	1	S8-50303-001	
6	Adapter, Oil Sender	ALL	2007-2008	1	7242360	
7	Coolant Temp Switch	ALL	2007-2008	1		15326386
8	MAP Sensor	Gasoline, Bi-Fuel	2007	1		9359409
	MAP Sensor	Gasoline, Bi-Fuel	2008	1		12591290
9	TMAP Sensor	LPG	2007-2008	1	E1466001	
10	Crank Sensor	ALL	2007	1		12562910
	Crank Sensor	ALL	2008	1		12595966
11	CKP Sensor Reluctor Ring	ALL	2008	1		93442981
12	Camshaft Sensor	ALL	2007-2008	1		10485432

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

**IGNITION MODULE/COIL (LPG, GASOLINE & BI-FUEL, 2007-2008)**

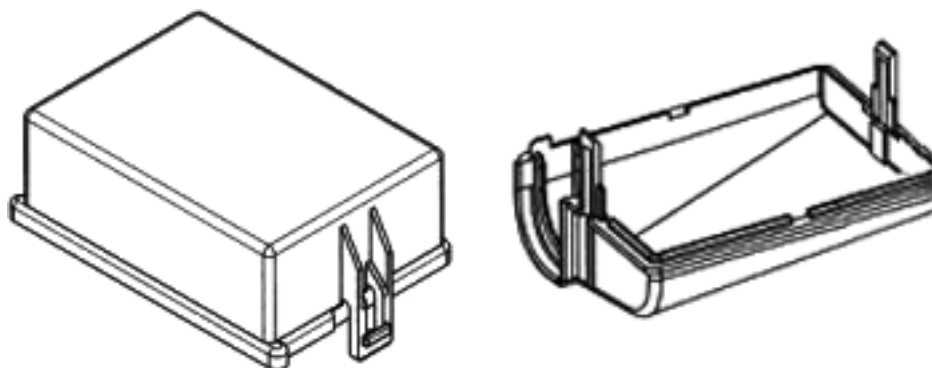
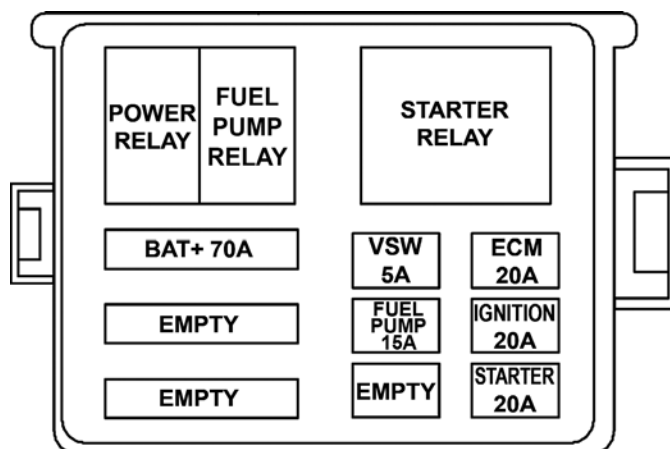
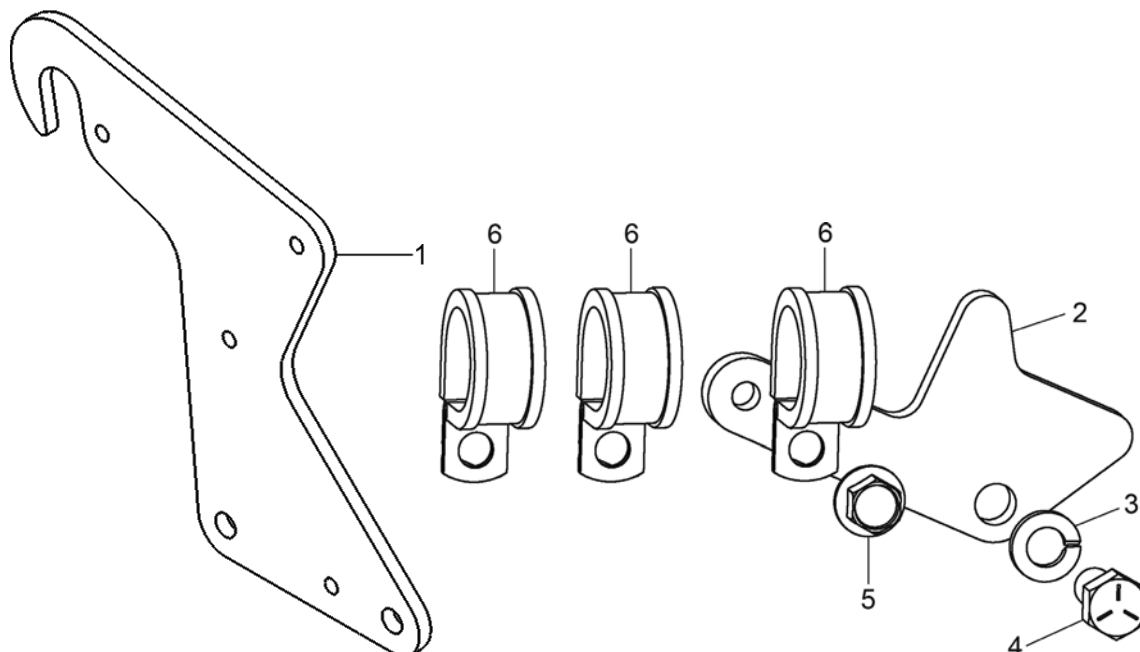
Item #	Description	Qty	Part Number	GM Part Number
1	Ignition Control Module & Coil	1		93804365
2	Bracket, Ignition Coil	1	B4-50092-001	
3	Screw Hex Flange M8-1.25 x 16MM	2	S1-30871-02-0816	
4	Screw, Hex Head SEMS 3/8"-16 x 3/4"	2	S1-178	

**DISTRIBUTOR (LPG, GASOLINE & BI-FUEL, 2007-2008)**

Item #	Description	Qty	IMPCO Part Number	GM Part Number
1	Distributor Ass'y (Complete-includes 2-9 below)	1		12598210
2	Cap, Distributor (Includes Screws)	1		10452458
3	Rotor, Distributor (Includes Screws)	1		10452457
4	Camshaft Sensor (Includes Screws for Cam Sensor, Cap and Rotor)	1		10485432
5	Clamp, Distributor	1	7245430	
6	Distributor Hold-down Bolt	1	S1-30871-01-0825	
7	Gasket, Distributor	1		10108445
8	Gear, Distributor Kit	1		10457356

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### ENGINE ELECTRICAL (GASOLINE, 2007-2008)



**Fuse Box Covers**

## 4.3L Toyota Lift Trucks

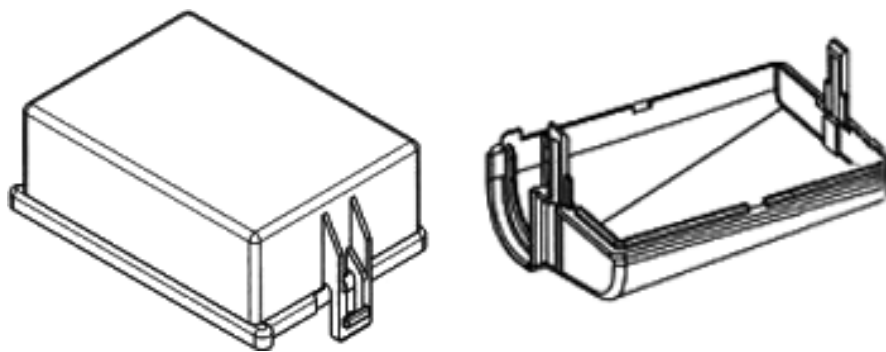
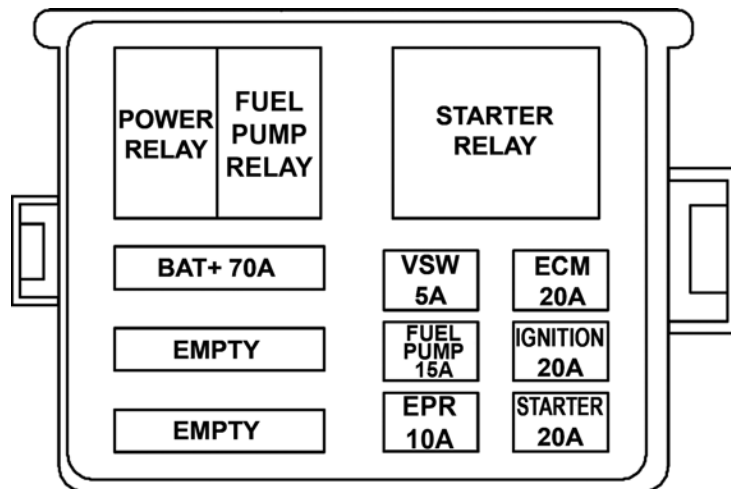
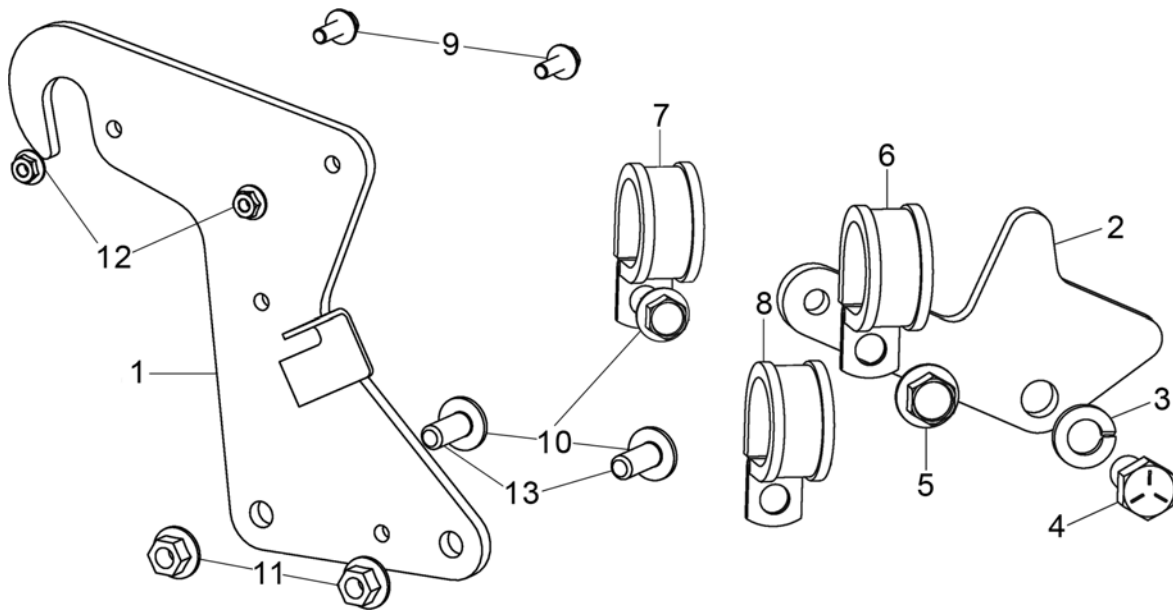
### Spectrum Series III



#### ENGINE ELECTRICAL (GASOLINE, 2007-2008)

Item #	Description	Qty	Part Number	Manuf. P/N
1	Bracket, 4.3L Fuse Box	1	B4-30942-001	
2	Bracket, Harness	1	B4-50350-001	
3	Lock Washer	1	93300000	
4	Bolt 3/8" x 16 x 3/4" Hex Grade 5	1	90305075	
5	Screw, Hex Flange M8-1.5 x 20mm	1	S1-30871-02-1020	
6	Clamp, Loop Cushion 5/16" x 1.13	3	C2-30880-018	
Wire Harness (Not Shown)	Main Engine Wire Harness (2007)	1	E1707000	
	Main Engine Wire Harness (2008)	1	E1707001	
Power Relay	Power Relay	1	885014 (2007)	1043897 (2008)
Fuel Pump Relay	Fuel Pump Relay	1	885014 (2007)	1043897 (2008)
Starter Relay	Starter Relay	1	792185	
Alternator 70A Fuse	70A Maxi Fuse	1	1054112	1054112
VSW 5A Fuse	5A Minifuse	1	7380660	914572
ECM 20A Fuse	20A Minifuse	1	7381270	914592
Ignition 15A Fuse	15A Minifuse (2007)	1	7381120 (2007)	
Ignition 20A Fuse	20A Minifuse (2008)	1	7381270 (2008)	914592
Starter 20A Fuse	20A Minifuse	1	7381270	914592
-	Fuse Box Cover (Top) w/o Label	1	E-6131	
-	Fuse Box Cover (Bottom)	1	E-6132	

### ENGINE ELECTRICAL (LPG & BI-FUEL, 2007-2008)



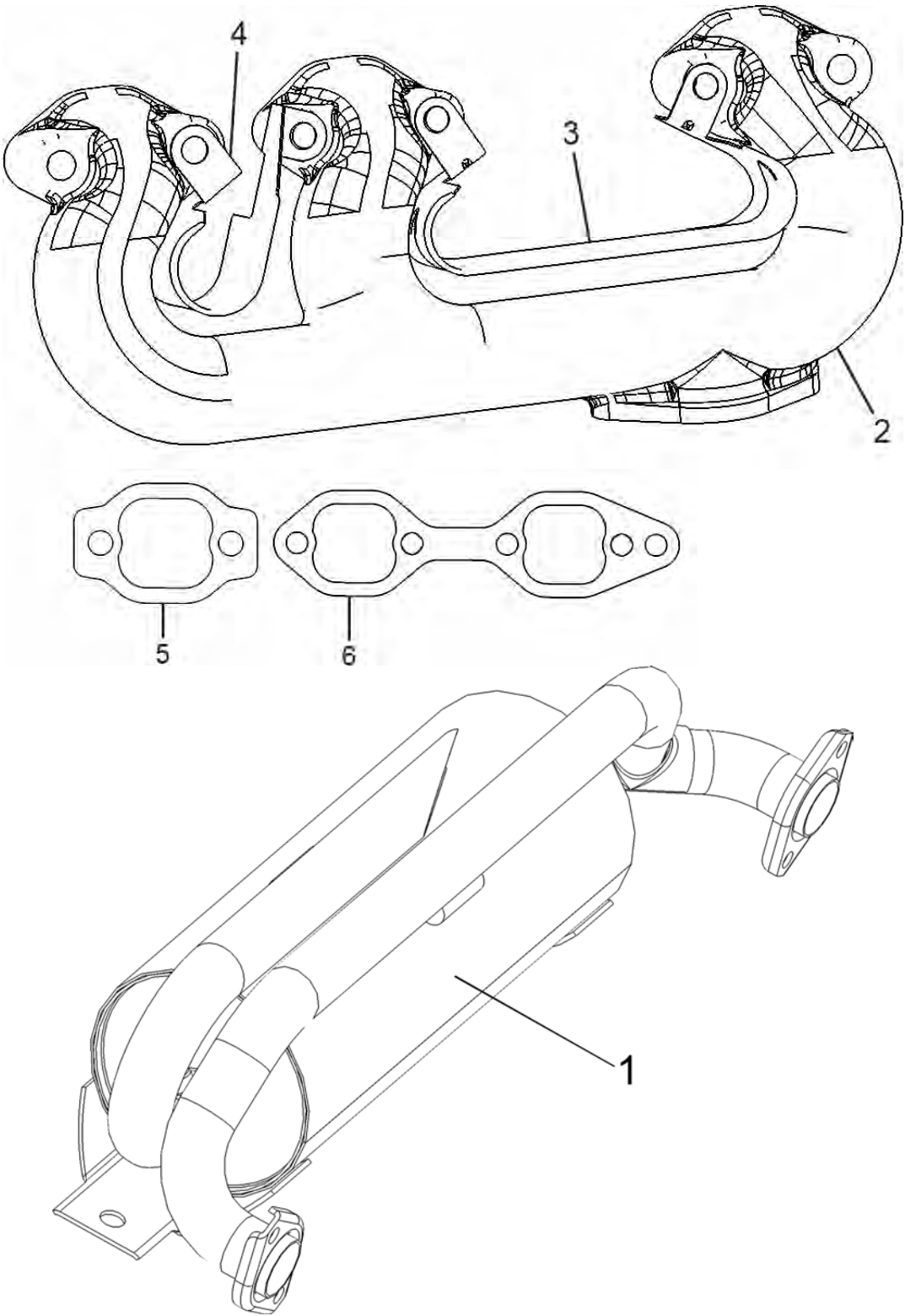
**Fuse Box Covers**



**ENGINE ELECTRICAL (LPG & BI-FUEL, 2007-2008)**

Item #	Description	Qty	Part Number	Manuf. P/N
1	Bracket, 4.3L Fuse Box	1	B4-30942-001	
2	Bracket, Harness	1	B4-50350-001	
3	Lock Washer	1	93300000	
4	Bolt 3/8" x 16 x 3/4" Hex Grade 5	1	90305075	
5	Screw, Hex Flange M8-1.25x10mm	1	S1-30871-02-0810	
6	Clamp, Lp-Cshnd 5/16 0.750 Id	2	C2-30880-012	
7	Clamp, Lp-Cshnd 5/16 1.000 Id	2	C2-30880-016	
8	Clamp, Lp-Cshnd 5/16 1.250 Id	2	C2-30880-020	
9	Screw, Hex Flange, M6 x 16mm	2	S1-30871-02-0616	
10	Washer, Plate	3		9414034 (GM)
11	Nut, Flange	2	NSS	
12	Nut, Hex Flange Serrated	2	N1-30876-M06	
13	Bolt, Stud	2	NSS	
Wire Harness (Not Shown)	Main Engine Wire Harness (LPG, 2007)	1	E1707300	
	Main Engine Wire Harness (Bi-Fuel, 2007)	1	E1707200	
	Main Engine Wire Harness (LPG, 2008)	1	E1707301	
	Main Engine Wire Harness (Bi-Fuel, 2008)	1	E1707201	
Power Relay	Power Relay	1	885014 (2007)	1043897 (2008)
Fuel Pump Relay	Fuel Pump Relay (Bi-Fuel)	1	885014 (2007)	1043897 (2008)
Starter Relay	Starter Relay	1	792185	
Alternator 70A Fuse	70A Maxi Fuse	1	1054112	1054112
VSW 5A Fuse	5A Minifuse	1	7380660	914572
ECM 20A Fuse	20A Minifuse	1	7381270	914592
Fuel Pump 15A Fuse (Bi-Fuel)	15A Minifuse	1	7381120	230898
Ignition 15A Fuse	15A Minifuse (2007)	1	7381120 (2007)	
Ignition 20A Fuse	20A Minifuse (2008)	1	7381270 (2008)	914592
EPR 10A Fuse (LPG & Bi-Fuel)	10A Minifuse	1	914584	914584
Starter 20A Fuse	20A Minifuse	1	7381270	914592
-	Fuse Box Cover (Top) w/o Label	1	E-6131	
-	Fuse Box Cover (Bottom)	1	E-6132	

**EXHAUST SYSTEM (LPG, GASOLINE & BI-FUEL, 2007-2008)**



## 4.3L Toyota Lift Trucks

### Spectrum Series III

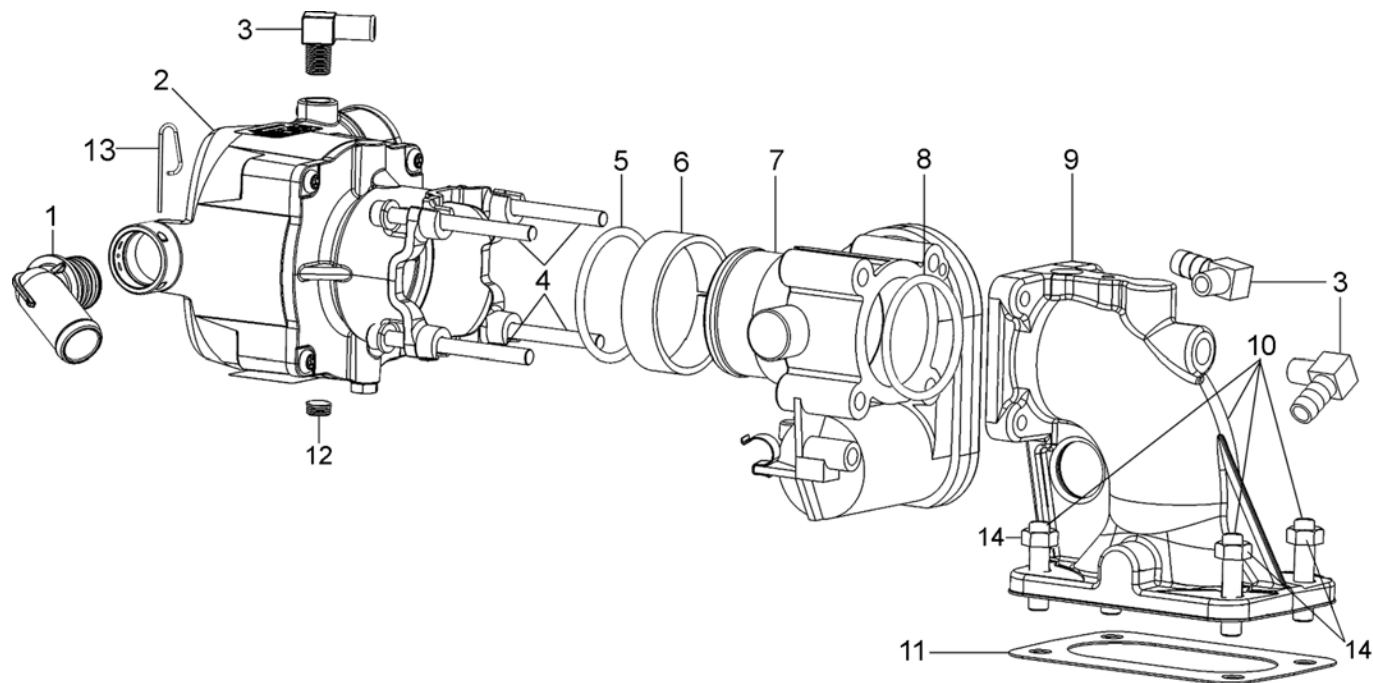


### EXHAUST SYSTEM (LPG, GASOLINE & BI-FUEL, 2007-2008)

Item #	Description	Qty	Part Number
1	Three-Way Cat/Muffler Standard	1	C12-50184-001
	Three-Way Cat/Muffler BCS (C35)	1	C12-50305-001
	Three-Way Cat/Muffler BCS (C55)	1	C12-50304-001
2	Exhaust Manifold	2	NSS
3	Shield, Exhaust Manifold	2	NSS
4	Shield, Exhaust Manifold	2	NSS
5	Gasket, Exhaust Manifold	2	NSS
6	Gasket, Exhaust Manifold	2	NSS

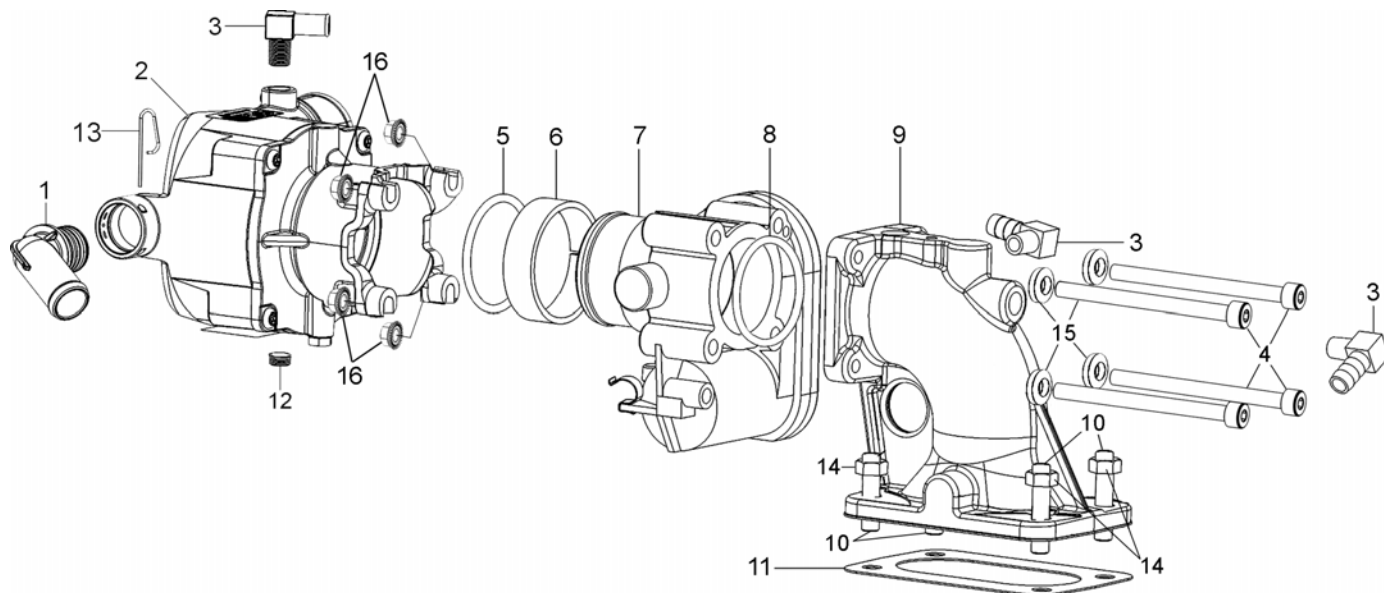
## 4.3L MCFA Lift Trucks

### MIXER AND THROTTLE BODY ASSEMBLY (2007)



Item#	Description	Qty	Part Number
1	Fitting, 70-Degree, 3/4" OD	1	AF4-31197-001
2	Carburetor ASM, 20-150	1	FT150-30919-20-001
3	Fitting, 1/8 NPT 3/8 Hs 90 El Brass	3	401-02
4	Screw, Hex Sock Cap	4	S1-30295-0660
5*	O-Ring Nitrile, #225	1	S3-1524-004
6	Sleeve, Plastic Bosch Throttle	1	S6-30976-001
7	Bosch Throttle Body, 40mm	1	E1312100
8*	O-Ring Nitrile, #032	1	S3-1524-003
9	Adapter, Elbow, 4.3L Lx-Bos SIII LP	1	A3-30940-001
10	Stud, 5/16-18 X 1 3/4", Torx	4	32501396
11	Gasket, Carb Mounting, 2bbl, 4.3L	1	G1-50251-001
12	Plug, 1/8 NPT 3/16 Hex Sch Brass	1	P3-46
13	Retaining Pin	1	P1-30559
14	Nut, 5/16-18, Flanged	4	N1-30876-031

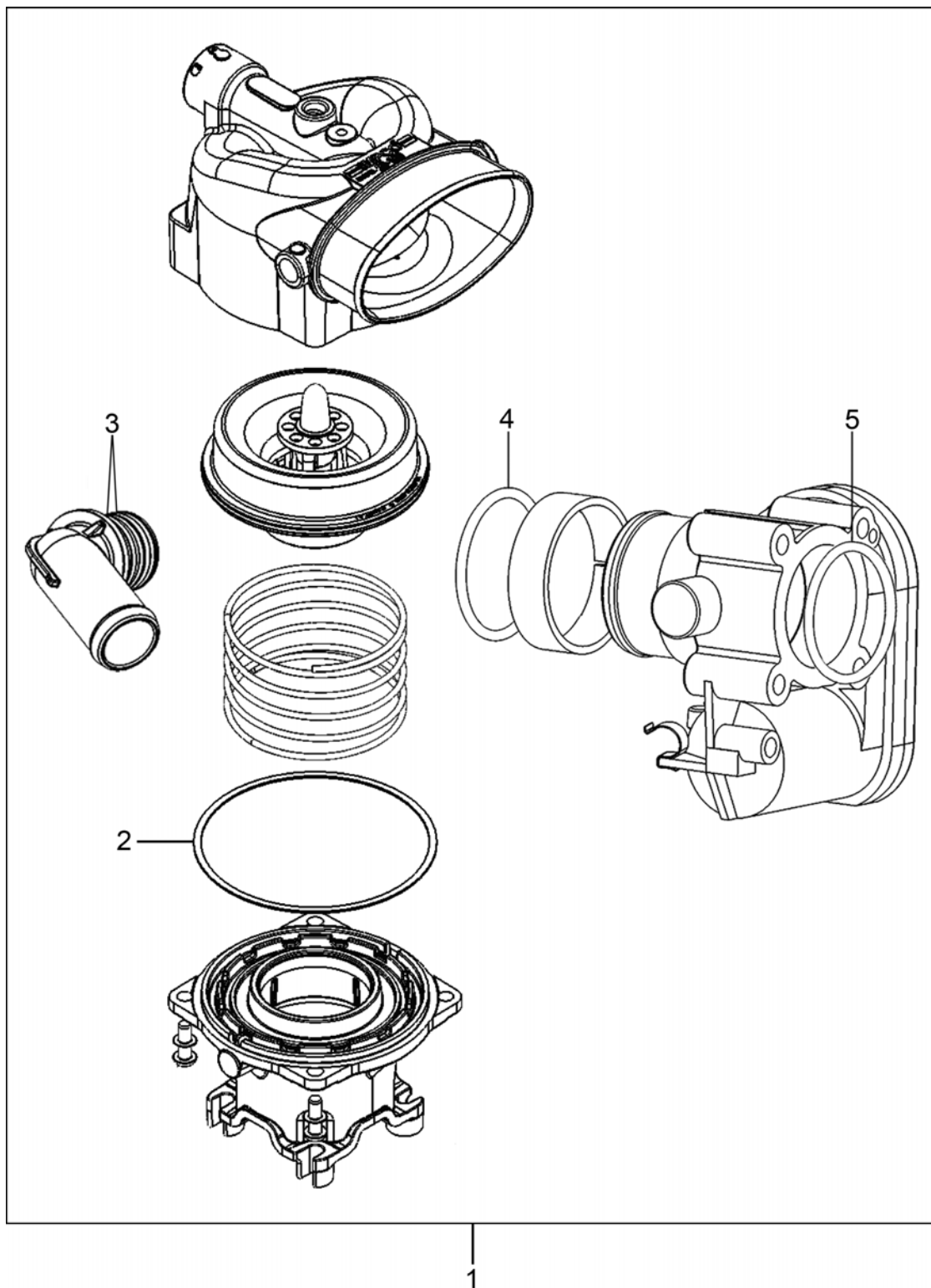
\*Included in Repair Kit RK-FT150

**MIXER AND THROTTLE BODY ASSEMBLY (2008)**

Item#	Description	Qty	Part Number
1	Fitting, 70-Degree, 3/4" OD	1	AF4-31197-001
2	Carburetor ASM, 20-150	1	FT150-30919-20-001
3	Fitting, 1/8 NPT 3/8 Hs 90 El Brass	3	401-02
4	Screw, Hex Sock Cap	4	S1-30295-0670
5*	O-Ring Nitrile, #225	1	S3-1524-004
6	Sleeve, Plastic Bosch Throttle	1	S6-30976-001
7	Bosch Throttle Body, 40mm	1	E1312100
8*	O-Ring Nitrile, #032	1	S3-1524-003
9	Adapter, Elbow, 4.3L Lx-Bos SIII LP	1	A3-30940-001
10	Stud, 5/16-18 X 1 3/4", Torx	4	32501396
11	Gasket, Carb Mounting, 2bbl, 4.3L	1	G1-50251-001
12	Plug, 1/8 NPT 3/16 Hex Sch Brass	1	P3-46
13	Retaining Pin	1	P1-30559
14	Nut, 5/16-18, Flanged	4	N1-30876-031
15	Washer, Conical, Spring 6mm	4	W1-31039-006
16	Nut, Hex, Flange Serrated M6 X 1.0"	4	N1-30876-M06

\*Included in Repair Kit RK-FT150

**MIXER REPAIR KIT (2007-2008)**



## 4.3L MCFA Lift Trucks

Spectrum Series III



### MIXER REPAIR KIT (2007-2008)

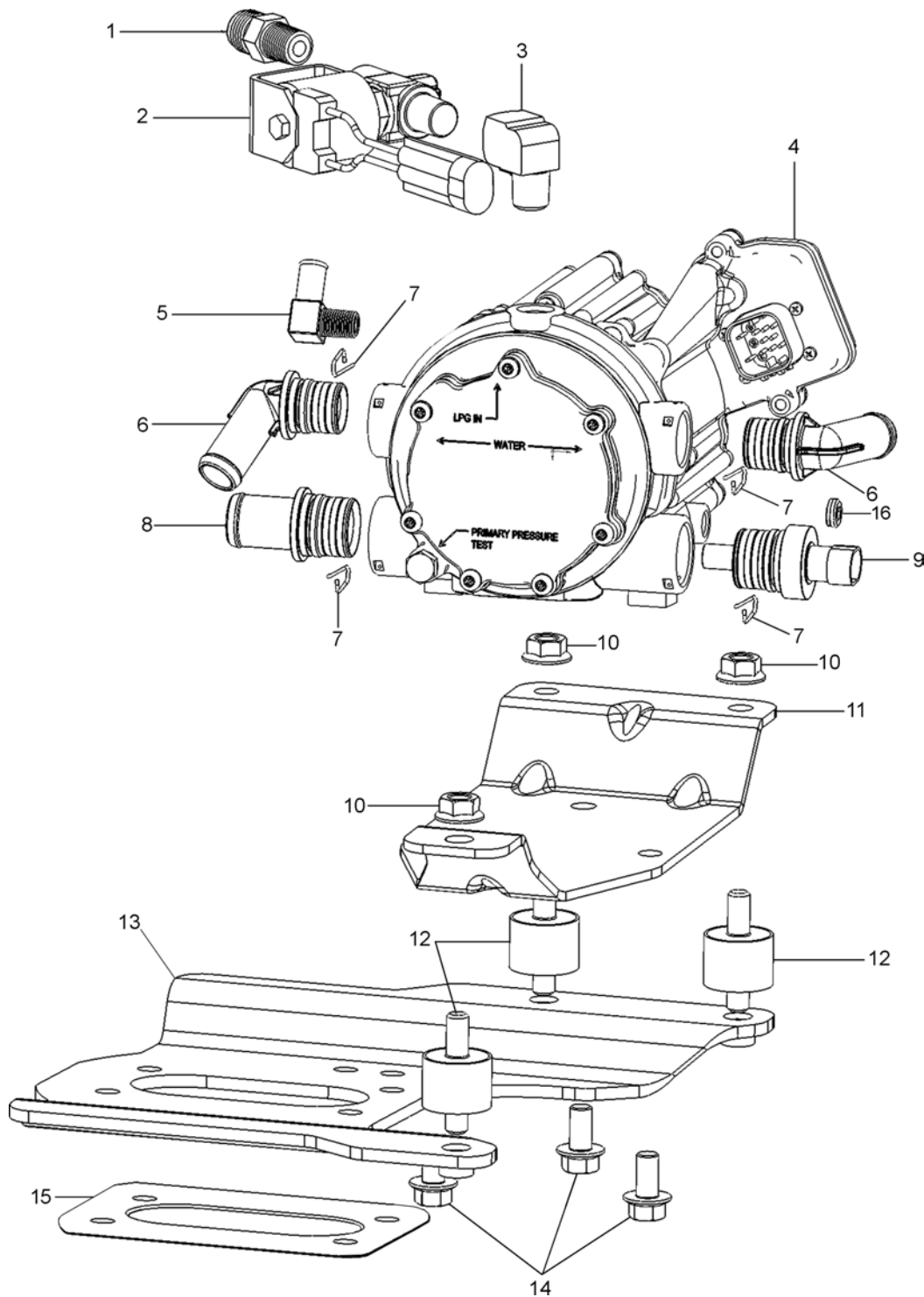
Item#	Description	Qty	Part Number
1	(Includes Items 2-5)	1	RK-FT150
2	Gasket	1	G1-31252-150
3	O-Ring	2	S3-31195-001
4	O-Ring	1	S3-1524-004
5	O-Ring	1	S3-1524-003

## 4.3L MCFA Lift Trucks

### Spectrum Series III



#### EPR ASSEMBLY (2007-2008)



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



## 4.3L MCFA Lift Trucks

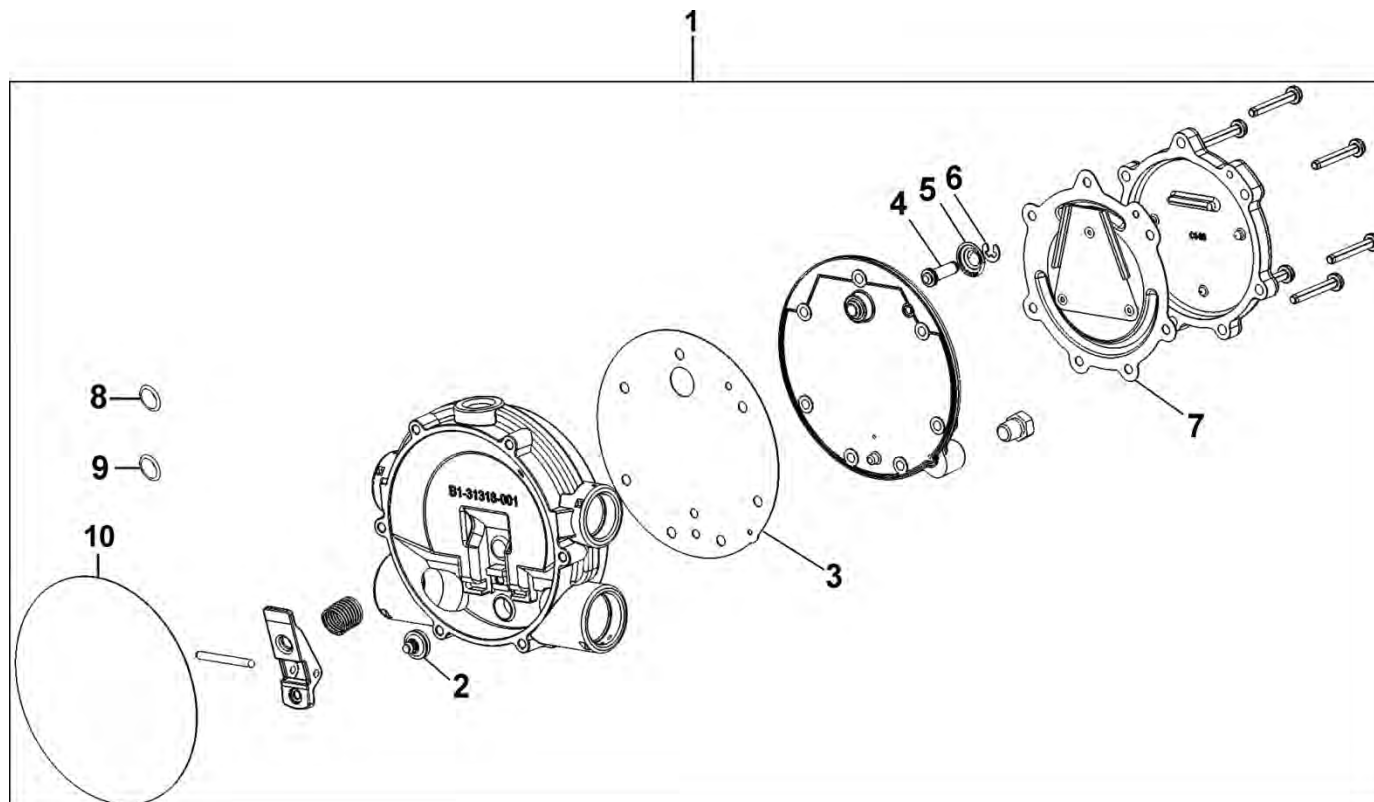
### Spectrum Series III



### EPR ASSEMBLY (2007-2008)

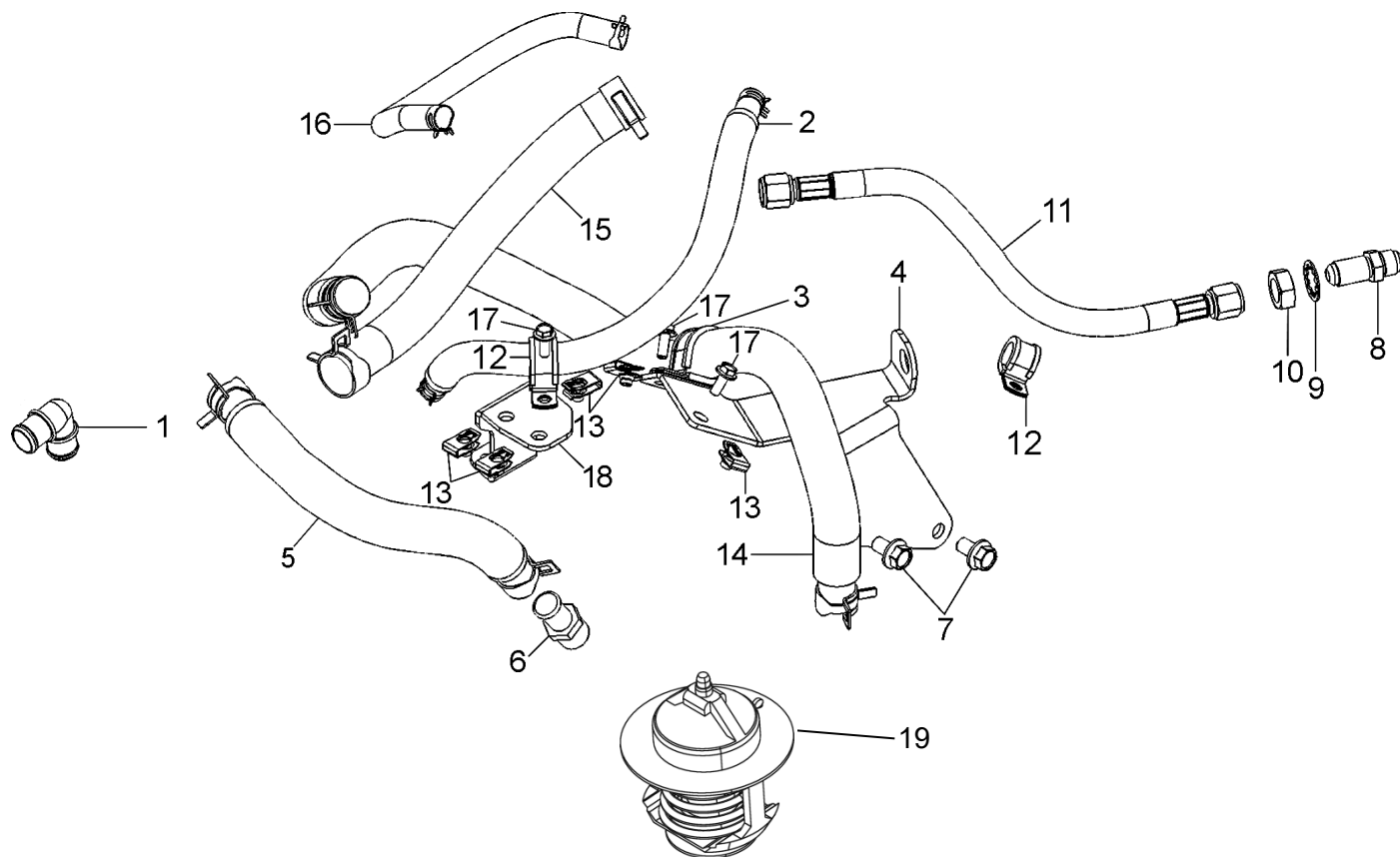
Item#	Description	Qty	Part Number
1	Fitting, ¼ NPT 3/8 Flare Brass	1	F4-14220
2	Valve, LPG Shut-Off	1	ET98-30515-001
3	Fitting, ¼ NPT Street 90 Elbow Brass	1	F4-14184-002
4	Electronic Pressure Regulator, EPR	1	EPR-50388-001
5	Fitting, 90 Deg. 1/8 NPT X 3/8	1	401-02
6	Fitting Assembly, 20 Degree	2	AF4-30614
7	Retaining Clip	4	P1-30559
8	Fitting Ass'y, Straight, 3/4"Od	1	AF4-31193-001
9	Temperature Sensor Ass'y	1	See Sensors
10	Nut, Hex Flange, Serrated	3	N1-30876-M08
11	Bracket, EPR-Upper	1	N/A
12	Mount Vibration, 2 Studs	3	R5-50080-002
13	Bracket, Mtg EPR, 2bbl, 4.3l	1	B4-50223-001
14	Screw, Hex Flange-M8x1.25x16	3	S1-30871-02-0816
15	Gasket, Carb Mounting, 2bbl, 4.3L	1	G1-50251-001
16	Plug, 1/8 NPT 3/16" Hex Sch Brass	1	P3-46

## REGULATOR REPAIR KIT (2007-2008)



Item#	Description	Qty	Part Number
1	Kit, Minor Repair (Includes items 2-10 only)	1	RK-EPR-3
	Kit, Major (Includes All parts shown in box, assembled)	1	RK-EPR-4
2	Seat, Secondary	1	NSS
3	Gasket, Body Secondary	1	NSS
4	Pin, Primary	1	NSS
5	Spring, Primary	1	NSS
6	Clip, Primary	1	NSS
7	Diaphragm, Primary	1	NSS
8	O-ring	4	NSS
9	O-ring	4	NSS
10	Seal, Clamp Plate, EPR	1	NSS

### HOSE ASSEMBLIES COOLANT/VACUUM/FUEL & THERMOSTAT (2007)



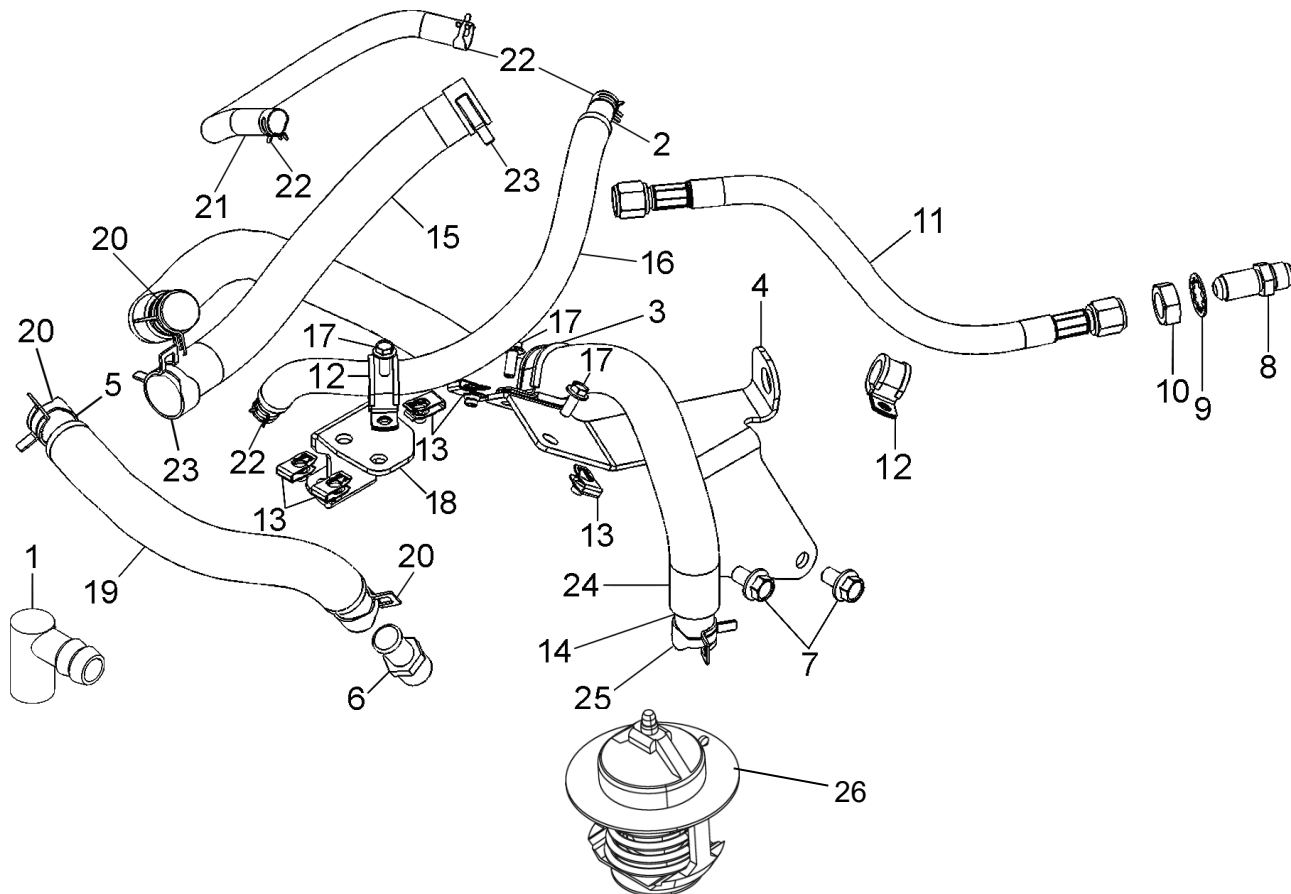
## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (2007)

Item #	Description		Qty	Part Number	GM Part Number
1	Elbow, Vent GM		1		1263193
2	Balance Hose, Ass'y 350mm	Hose 3/8" Fuel/Oil 1.16'L	1	H1-19253-015	
		Clamp, Hose, .69" OD	2	C2-16664-1	
		Conduit, Round Convolute 1.13'L	1	NSS	
3	Clamp, Loop Cushioned, 8mm hole x 32mm		1	C2-30880-020	
4	Bracket, Fuel Line Support 4.3L		1	B4-50258-001	
5	Coolant Hose, Ass'y 300 mm	Hose Coolant 5/8" Dia. 1.02'L	1	H1-19255-016	
		Clamp, Hose	2	C2-16664-2	
		Conduit, Rnd Slit 0.92'L	1	NSS	
6	Fitting, 1/2NPT X 5/8 Hose		1	7171440	
7	3/8"-16x5/8" Bolt Fn Gr5		2		95200000
8	Fitting, Bulkhead #6 SAE-45deg		1	F4-50259-001	
9	Washer-Lock, Internal Tooth 5/8		1	W1-1588-010	
10	Nut, Hex Jam - 5/8-11		1	N1-30326-162	
11	LPG Hose Ass'y, CGA 340mm		1	AH1-50301-001	
12	Clamp, Loop Cushioned, 5/16" Bolt X .63" ID		2	C2-30880-012	
13	Nut, Clip M6		5	N1-50181-0640	
14	Coolant Hose Ass'y, 750mm	Hose Coolant 5/8" 2.46'L	1	H1-19255-017	
		Clamp, Hose	2	C2-16664-2	
		Conduit, Rnd Slit 2.28'L	1	NSS	
15	Vapor Hose Ass'y, 290mm	Hose 3/4" Fuel/Oil Bulk 0.95'L	1	H1-19253-016	
		Clamp, Hose	2	C2-16664-4	
16	PCV Hose Ass'y, 310mm	Hose 3/8" ID Fuel/Oil Bulk 0.98'L	1	H1-19253-014	
		Clamp, Hose	2	C2-16664-1	
17	Screw, Hex, Flange, M6 X 16mm		3	S1-30871-02-0616	
18	Bracket, Air Pipe, 4.3L, MCFA		1	7176730	

## THERMOSTAT

Item #	Description	Qty	GM Part Number
19	Thermostat, 170°	1	10202456

### HOSE ASSEMBLIES COOLANT/VACUUM/FUEL & THERMOSTAT (2008)



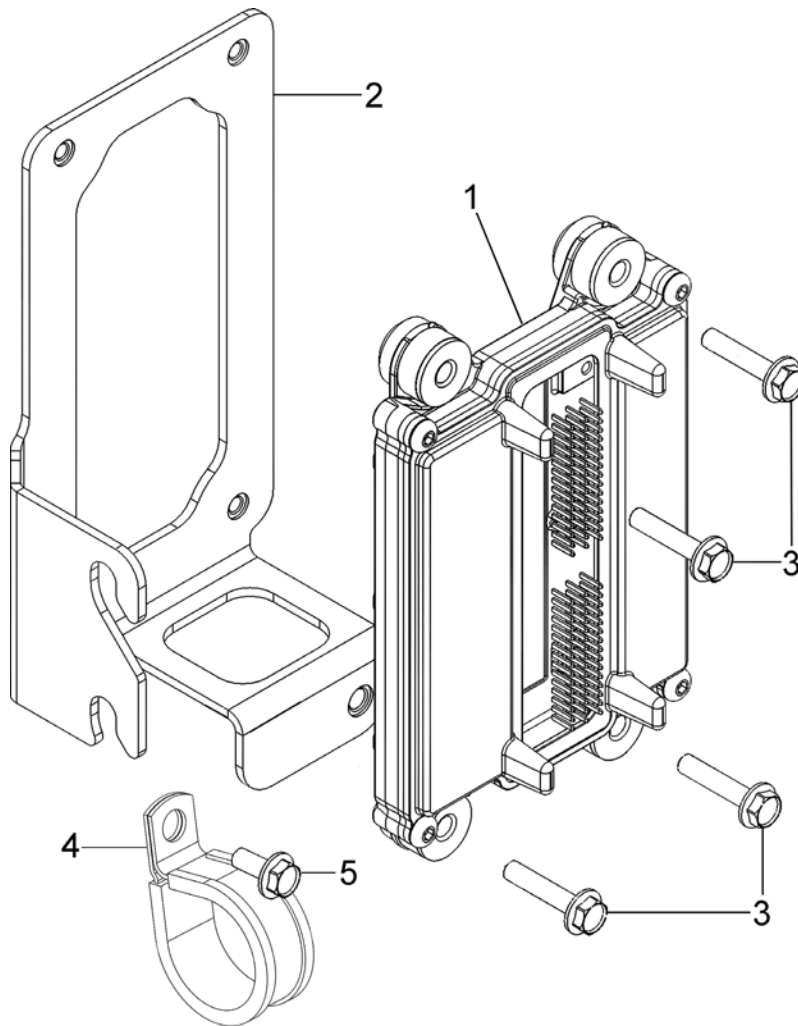
**HOSE ASSEMBLIES COOLANT/VACUUM/FUEL & THERMOSTAT (2008)**

Item #	Description	Qty	Part Number	GM Part Number
1	Fitting, Elbow, 90 degree PCV	1	F4-30912-001	
2	Hose 3/8" Fuel/Oil 13.88" Long	1	H1-19253-015	
3	Clamp, Loop Cushioned, 5/16 .750 ID	1	C2-30880-012	
4	Bracket, Fuel Line Support 4.3L	1	B4-50258-001	
5	Hose, 5/8" ID Coolant 12.25" L	1	H1-19255-016	
6	Fitting, 1/2" NPT x 5/8 Hose	1	7171440	
7	3/8"-16x2-1/8" Bolt Fn Gr5	2		12552096
8	Fitting, Bulkhead #6 SAE-45deg	1	F4-50259-001	
9	Washer-Lock, Internal Tooth 5/8	1	W1-1588-010	
10	Nut, Hex Jam-5/8-11	1	N1-30326-162	
11	LPG Hose Ass'y	1	AH1-50301-001	
12	Clamp	2		15664822
13	Nut, Clip M6	5	N1-50181-0640	
14	Hose, ID Coolant 29.50" L Coolant	1	H1-19255-017	
15	Hose 3/4" ID Fuel/Oil 11.75" L	1	H1-19253-016	
16	Conduit, Round, Convolute	1	NSS	
17	Screw, Hex, Flange, M6 X 16mm	3	S1-30871-02-0616	
18	Bracket, Air Pipe, 4.3L, MCFA	1	7176730	
19	Conduit, Round Convolute	1	NSS	
20	Clamp, Hose OD .88	3	C2-14106-006	
21	Hose, Fuel Oil, 3/4" ID 11.75" L	1	H1-19253-014	
22	Clamp, Hose, .69 OD	4	C2-16664-1	
23	Clamp, Hose 19mm	2	C2-16664-4	
24	Conduit, Round, Convolute	1	NSS	
25	Clamp, Hose 1/2 to 1 1/8SAE 10	1	C2-14106-006	

**THERMOSTAT**

Item #	Description	Qty	GM Part Number
26	Thermostat, 170°	1	10202456

## ENGINE CONTROL MODULE (2007-2008)



Item #	Description	Qty.	Part Number
1	Engine Control Module (ECM)	1	E1687001
2	Bracket, ECM	1	B4-50169-001
3	Bolt, M6-1.0 x 32 M	4	S1-30871-02-0635
4	Clamp, L, Cushioned-8mm Hole x 32mm	1	C2-30880-020
5	Bolt, M8-1.25 x 20mm, Flange	1	S1-30871-02-0820

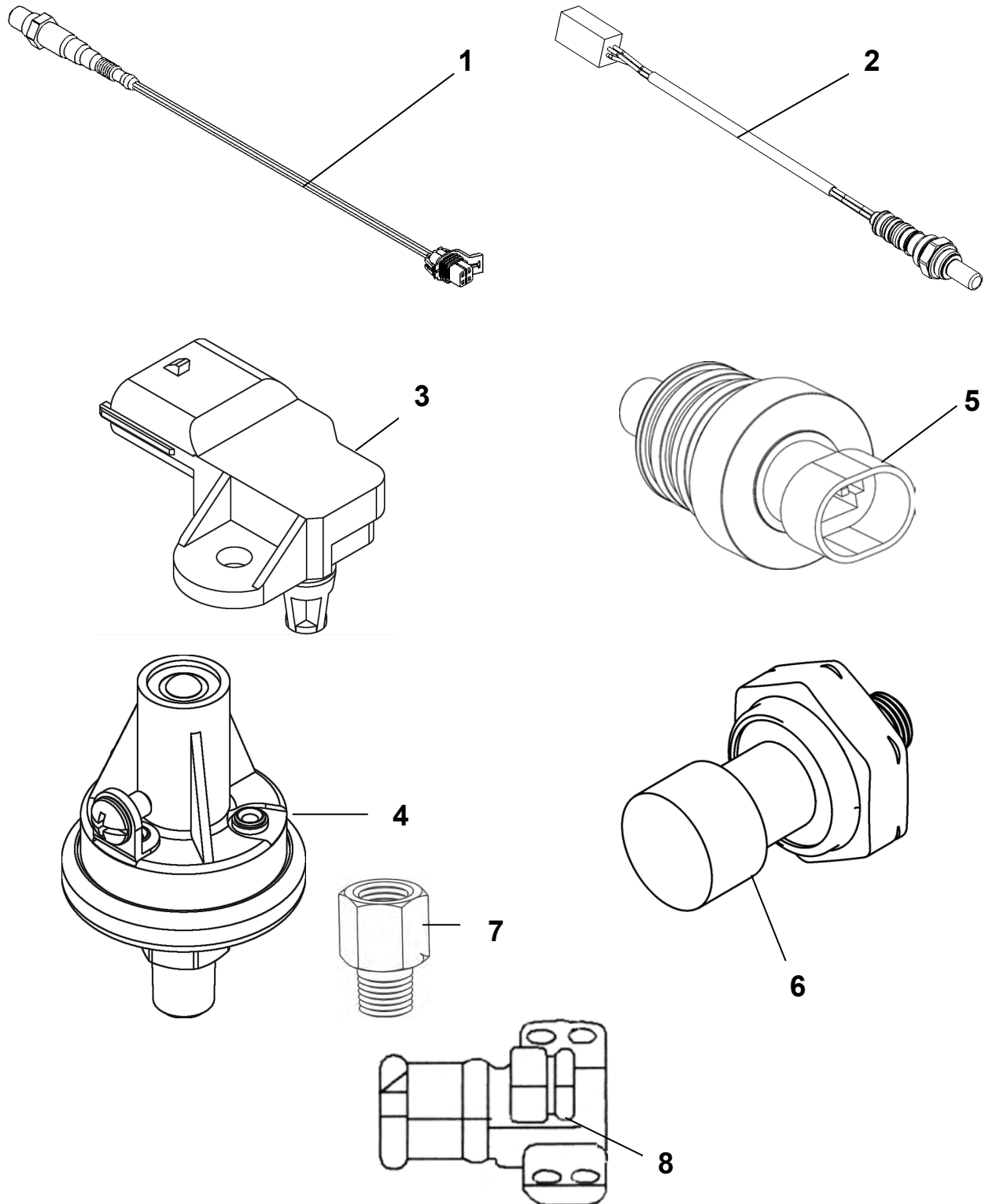
**Note:** All ECMs are sold as un-programmed generic hardware modules. The service technician must flash the appropriate .mot file before the ECM can be used in the application. IMPCO Technologies does not supply the .mot files. These files must be acquired through the OEM service network. Service technicians must be factory authorized to access these files. If you are not able to access these files through your OEM network, you must purchase a pre-programmed ECM through your authorized OEM parts supplier. To receive Spectrum Series III training please visit our website at [www.impcotechnologies.com](http://www.impcotechnologies.com).

## 4.3L MCFA Lift Trucks

Spectrum Series III



### SENSORS (2007)



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



## 4.3L MCFA Lift Trucks

### Spectrum Series III



### SENSORS (2007)

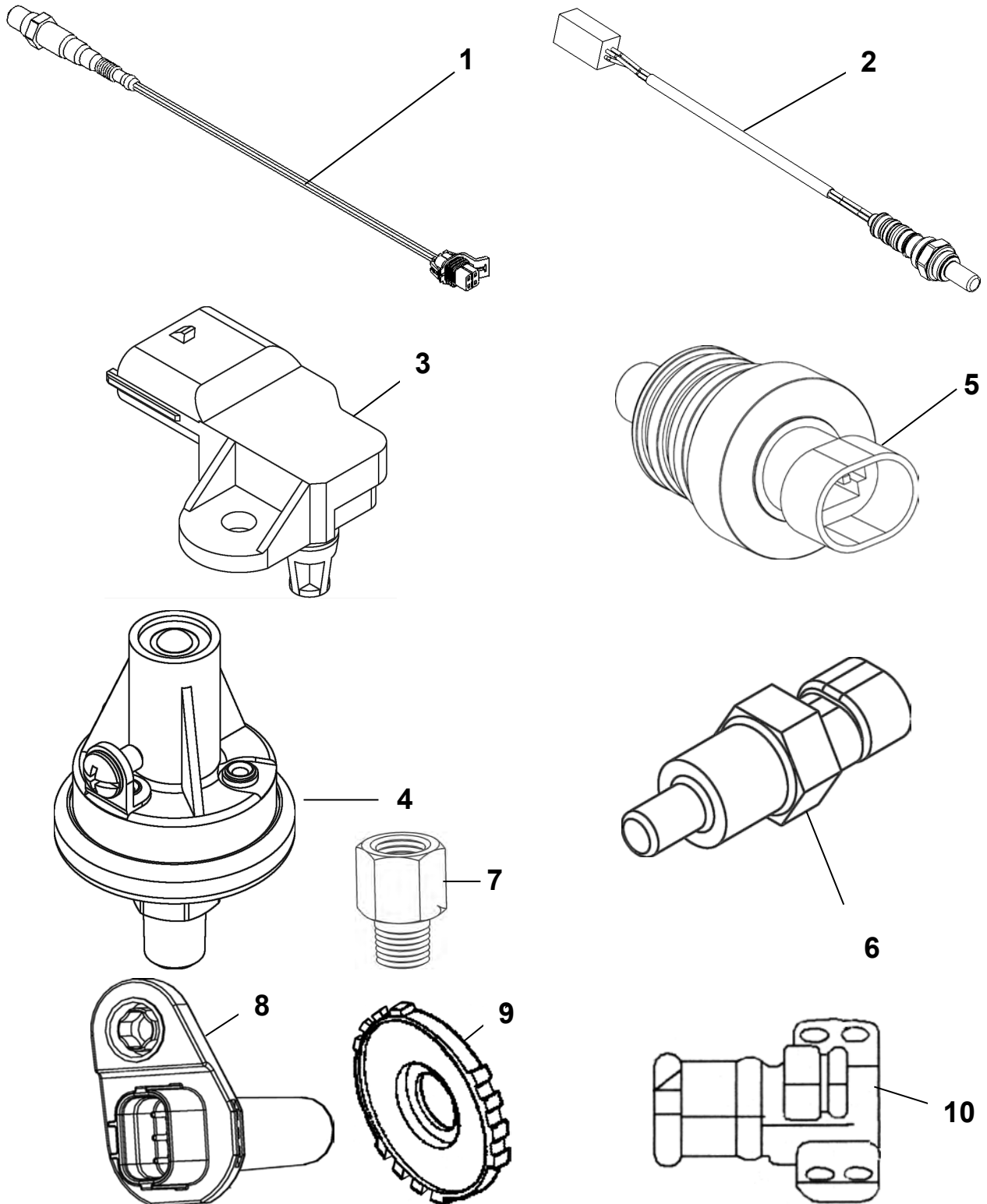
Item #	Description	Qty	Part Number	GM Part Number
1	HEGO, Post Catalyst	1	S8-50234-001	
2	HEGO, Pre-Catalyst	1	7176700	
3	Sensor, TMAP	1	E1466001	
4	Oil Pressure Switch	1	S10-50352-001	
5	LPG Temp Sensor	1	AS8-31353-001	
6	Coolant Temp Sensor	1		15326386
7	Adapter, Oil Sender	1	7242360	
8	Camshaft Sensor	1		10485432

## 4.3L MCFA Lift Trucks

Spectrum Series III



### SENSORS (2008)



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## 4.3L MCFA Lift Trucks

### Spectrum Series III



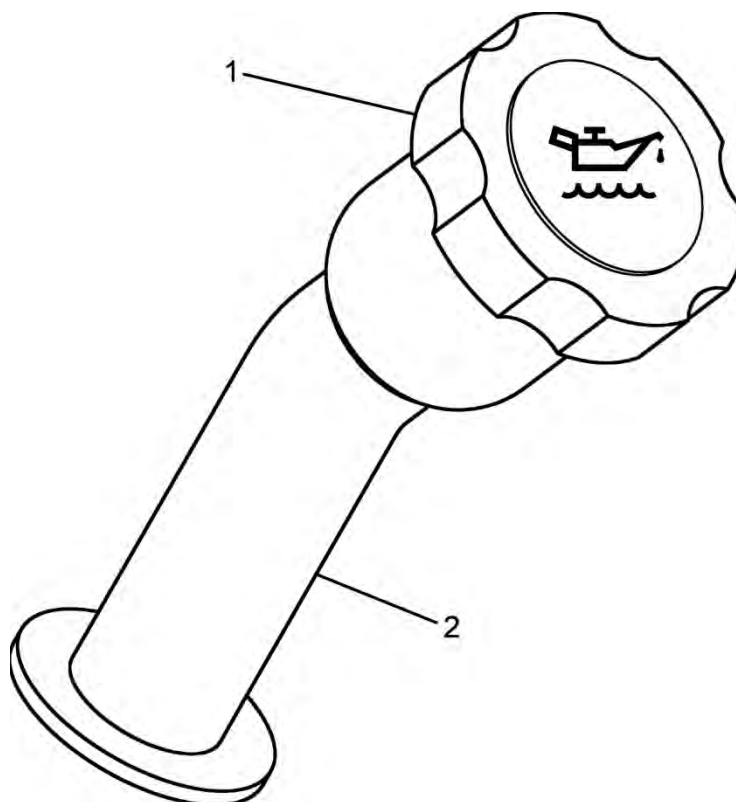
### SENSORS (2008)

Item #	Description	Qty	Part Number	GM Part Number
1	<u>HEGO</u> , Post Catalyst	1 (early production) 2 (later production)	S8-50234-001	
2	<u>HEGO</u> , Pre-Catalyst	1 (early production)	7176700	
3	Sensor, TMAP	1	E1466001	
4	Oil Pressure Switch	1	S10-50352-001	
5	LPG Temp Sensor	1	AS8-31353-001	
6	Coolant Temp Sensor	1		15326386
7	Adapter, Oil Sender	1	7242360	
8	Crank Sensor	1		12595966
9	CKP Sensor Reluctor Ring	1		93442981
10	Camshaft Sensor	1		10485432

**Note:** In later production 2008 applications

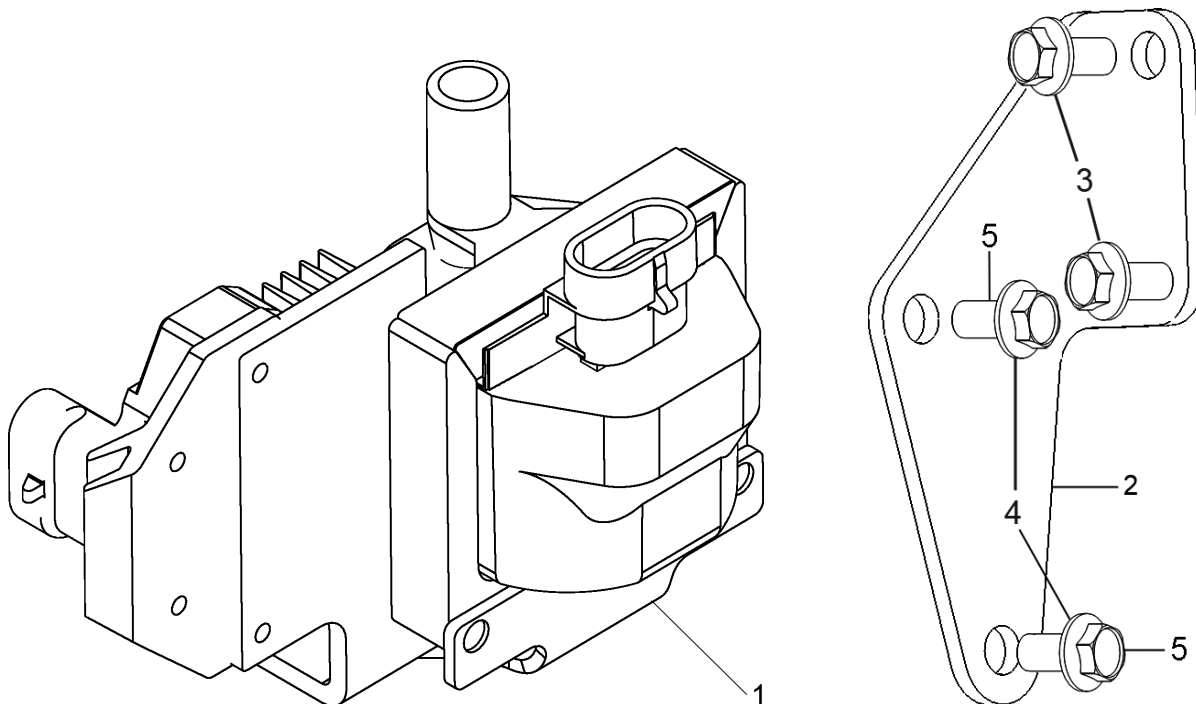
**P/N:** S8-50234-001 replaces P/N 7176700.

### OIL FILL RISER/CAP & MISC HARDWARE (2007-2008)



Item #	Description	Qty	GM Part Number
1	Oil Fill Cap	1	12573336
2	Oil Fill Tube Extension	1	12570623

### IGNITION MODULE/COIL (2007-2008)



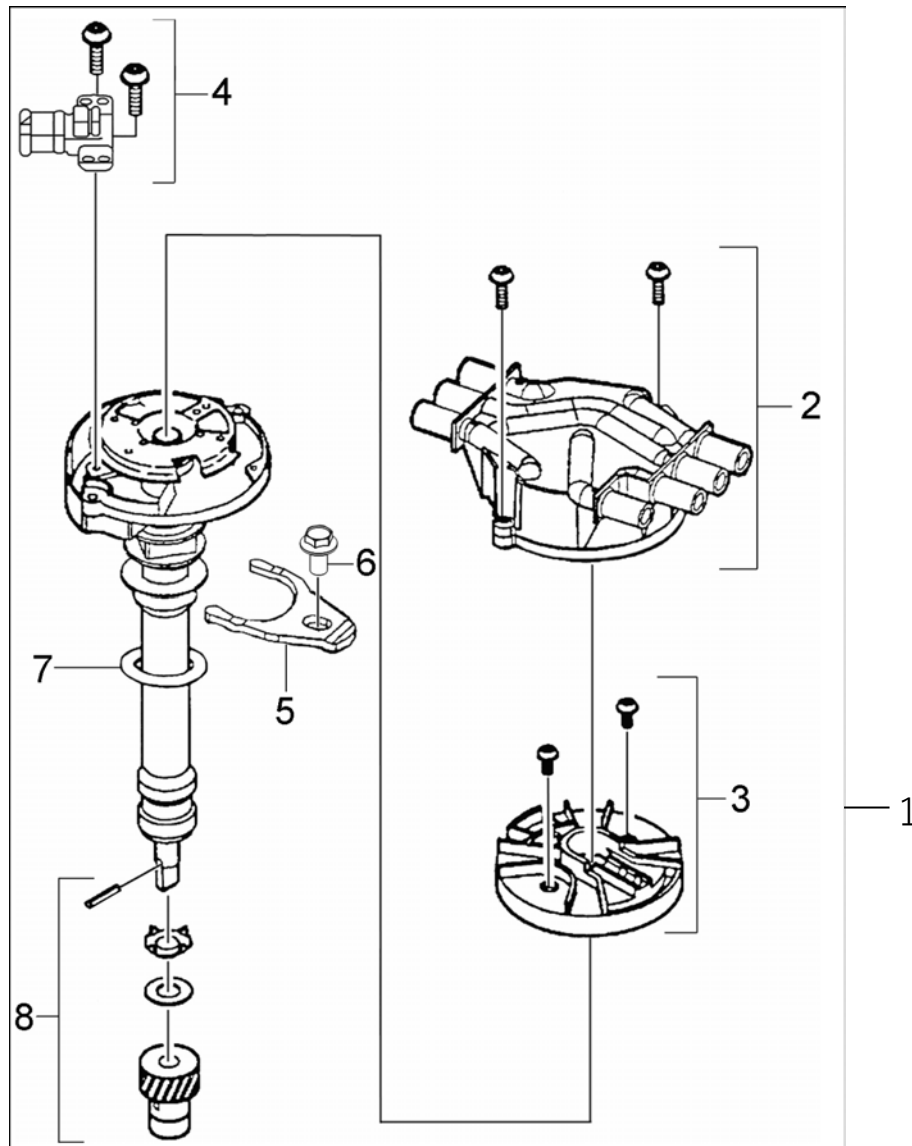
Item #	Description	Qty	Part Number	GM Part Number
1	Ignition Control Module & Coil	1		93804365
2	Bracket, Ignition Coil	1	B4-50092-001	
3	Screw Hex Flange M8-1.25 x 16MM	2	S1-30871-02-0816	
4	Washer, Lock 3/8"	2	93300000	
5	Screw, Hex Head SEMS 3/8"-16 x 3/4"	2	90305250	

## 4.3L MCFA Lift Trucks

Spectrum Series III



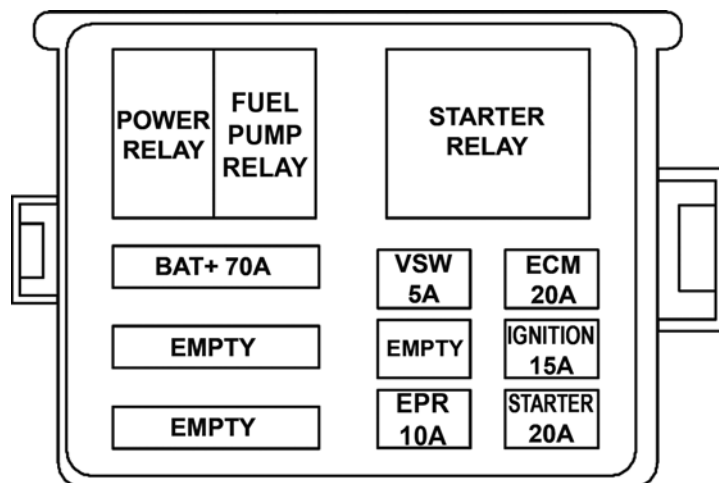
### DISTRIBUTOR (2007-2008)



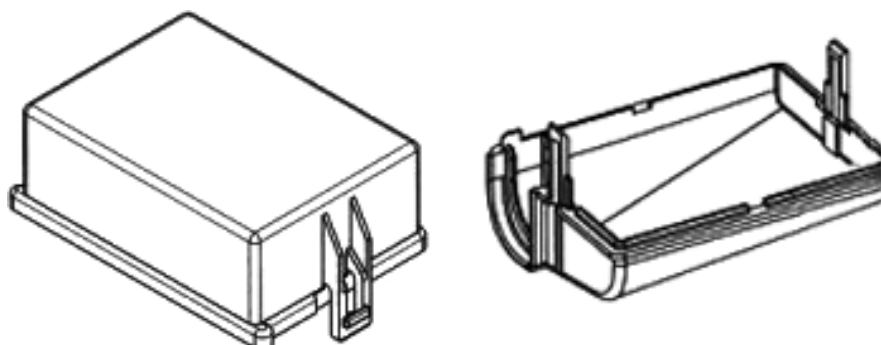
Item #	Description	Qty	IMPCO Part Number	GM Part Number
1	Distributor Ass'y (Complete)	1		12598210
2	Cap, Distributor (Includes Screws)	1		10452458
3	Rotor, Distributor (Includes Screws)	1		10452457
4	Camshaft Sensor (Includes Screws for Cam Sensor, Cap and Rotor)	1		10485432
5	Clamp, Distributor	1	7245490	
6	Distributor Hold-down Bolt	1	S1-30871-01-0825	
7	Gasket, Distributor	1		10108445
8	Gear, Distributor Kit	1		10457356

Note: Where applicable, any product underlined and in **red text** is obsolete. Visit page 6 for support.

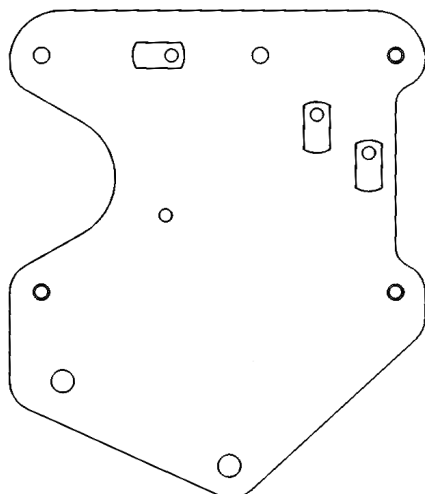
### WIRE HARNESSES/ENGINE ELECTRICAL/FUSE BOX (2007-2008)



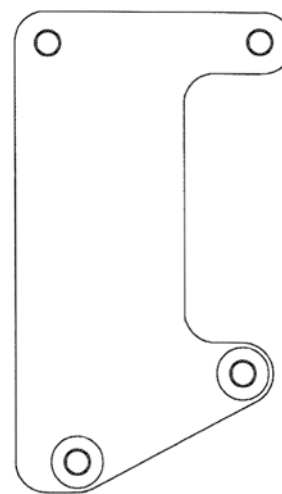
**Fuse Box Covers**



**Fuse Box Mounting Brackets**



**Original Bracket**



**New Bracket**

## 4.3L MCFA Lift Trucks

Spectrum Series III



### WIRE HARNESSES/ENGINE ELECTRICAL/FUSE BOX (2007-2008)

Item #	Description	Qty	Part Number	Manuf P/N
1 (Not Shown)	Main Wire Harness	1	E1707101 (2007 & Early 2008) E1707401 (Later 2008)	
Power Relay	Power Relay	1	885014	885014
Starter Relay	Starter Relay	1	792185	792185
Alternator 60A Fuse	60A Maxi Fuse	1	938198	938198
VSW 5A Fuse	5A Minifuse	1	7380660	914572
ECM 20A Fuse	20A Minifuse	1	7381270	914592
Ignition15A Fuse	15A Minifuse	1	7381120	230898
EPR 10A Fuse	10A Minifuse	1	914584	914584
Starter 20A Fuse	20A Minifuse	1	7381270	914592
	Fuse Box Cover (Top) w/Label	1	E-6131-1	
	Fuse Box Cover (Top) w/o Label	1	E-6131	
	Fuse Box Cover (Bottom)	1	E-6132	
	Fuse Box Mounting Bracket, Original	1	7370810	
	Fuse Box Mounting Bracket, New	1	B4-51072-001	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



## 4.3L MCFA Lift Trucks

### Spectrum Series III



### WIRE HARNESS REPAIR (2007-2008)

The individual wire harness connectors listed below replace connectors on P/N E1707100, MCFA LPG Spectrum Series III Wire Harness. Each connector or “pigtail” is pre-wired and tested.

Connector #	Pigtail Part #	Connector Description	Application
C002	PT-E1707100-C002	Pigtail, Service Only	LPG Temperature Sensor
C003	PT-E1707100-C003	Pigtail, Service Only	Shut-Off Valve
C004	PT-E1707100-C004	Pigtail, Service Only	HEGO 2, Includes Clip
C005	PT-E1707100-C005	Pigtail, Service Only	HEGO 1, Includes Clip
C006	PT-E1707100-C006	Pigtail, Service Only	Bosch TMAP
C007	PT-E1707100-C007	Pigtail, Service Only	ECT Sensor
C008	PT-E1707100-C008	Pigtail, Service Only	Oil Pressure Switch
C009	PT-E1707100-C009	Pigtail, Service Only	Ignition Coil
C010	PT-E1707100-C010	Pigtail, Service Only	Ground
C011	PT-E1707100-C011	Pigtail, Service Only	Ignition Module
C012	PT-E1707100-C012	Pigtail, Service Only	Vehicle Interface Connector
C013	PT-E1707100-C013	Pigtail, Service Only	Starter Solenoid
C014	PT-E1707100-C014	Pigtail, Service Only	Diagnostic Connector Includes Protective Cap & Clip
C015	PT-E1707100-C015	Pigtail, Service Only	Crank Sensor
C016	PT-E1707100-C016	Pigtail, Service Only	Cam Sensor
C017	PT-E1707100-C017	Pigtail, Service Only	Bosch Throttle
C018	PT-E1707100-C018	Pigtail, Service Only	EPR
C019	PT-E1707100-C019	Pigtail, Service Only	Battery Pos (+)
C020	PT-E1707100-C020	Pigtail, Service Only	Alternator Pos (+) Includes Boot
C021	PT-E1707100-C021	Pigtail, Service Only	Alternator
C022	PT-E1707100-C022	Pigtail, Service Only	Use PT-E1707100-C010
C023	PT-E1707100-C023	Pigtail, Service Only	Alternator Neg (-)

Refer to the wire harness drawing or schematic provided in the IMPCO service manual, identify the connector in need of replacement and its CO (connector) number, then identify the part number using the above table.


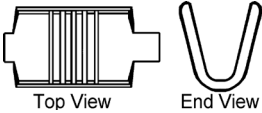


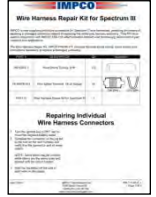
## 4.3L MCFA Lift Trucks

### Spectrum Series III



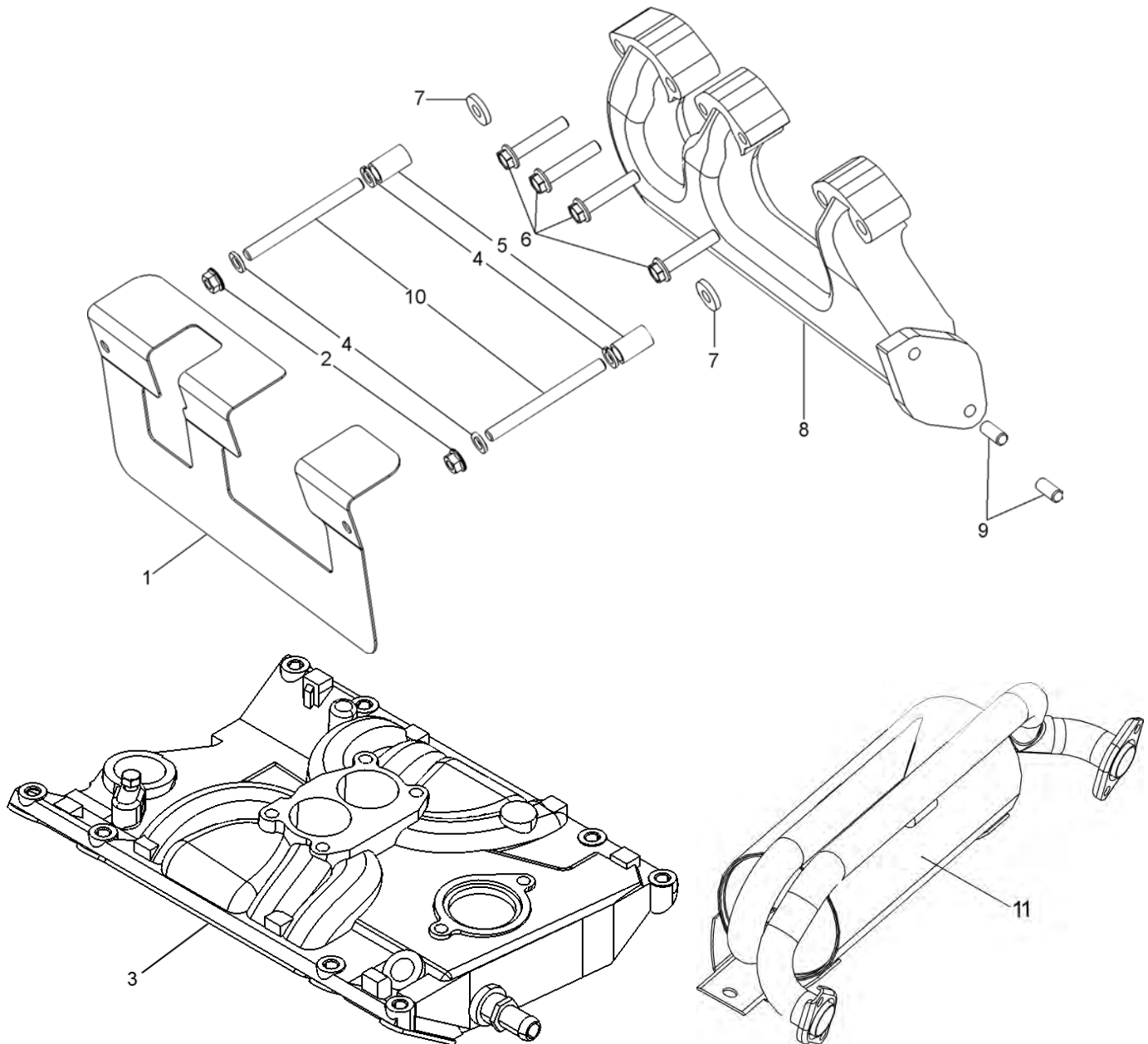
### WIRE HARNESS REPAIR (2007-2008)

Repair Kit, P/N RK-PT, provides the following components necessary to splice in a new connector:

				
1	2	3	4	5

Item #	Description	Qty	Part Number
1	Heat Shrink Tubing, 3/16"	3.5'	H5-15342-1
2	Wire Splice Terminal, 16-22 Gauge	30	T4-50879-001
3	Butt Splice, 16-14 gauge wire	30	330368
4	Butt Splice, 12-10 gauge wire	30	330369
5	Wire Harness Repair Kit Instructions for Spectrum III	1	PPI-114

## MANIFOLDS & EXHAUST SYSTEM (2007-2008)



## 4.3L MCFA Lift Trucks

Spectrum Series III



### MANIFOLDS & EXHAUST SYSTEM (2007-2008)

Item#	Description	Qty	Part Number	GM Part Number
1	Shield, Exhaust Manifold	2	7152020	
2	Nut, Hex, 3/16-16	4	95300000	
3	Intake Manifold	1		12595828
4	Washer, Lock 3/8"	8	93300000	
5	Spacer, 16mm OD x 32mm LG MCFA	4	7151980	
6	Bolt, 3/8"-16-2" hex, flange Gr8	8	90328200	
7	Washer, Flat 3/8" ID 3/16" thick	4		00666674
8	Manifold, Exhaust, RH	1	7152040	
	Manifold, Exhaust, LH	1	7152030	
9	Stud, Exhaust M10-1.25 x 25mm	4	7151990	
10	Stud, Exhaust 3/8" x 16 x 4-14"	4	7152050	
11	Catalytic Converter	1	C12-50185-001	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

#### SERVICE BLOCK (2007-2008)

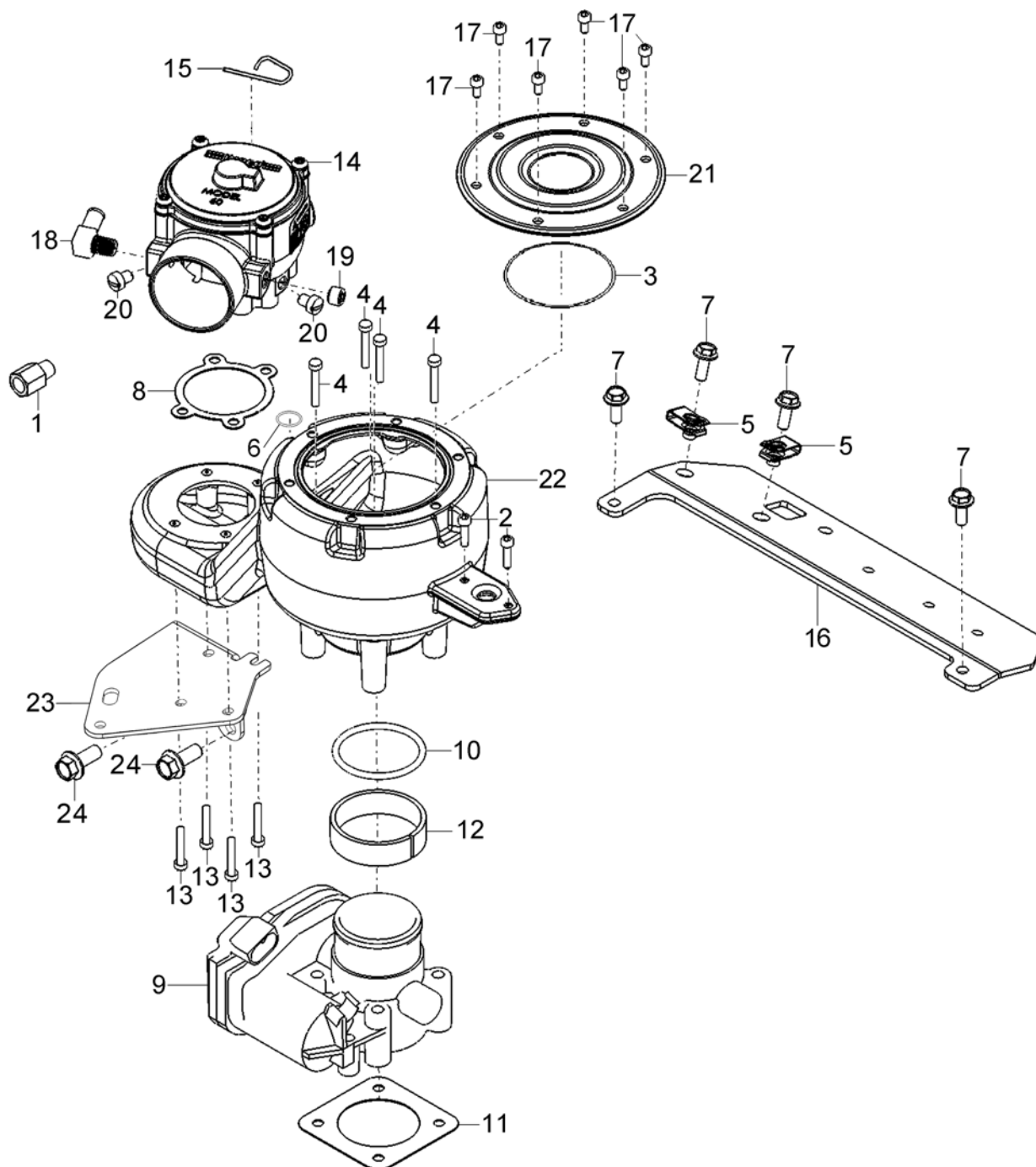


Description	Qty	GM Part Number (For Reference Only)
2007 Service Block	1	7043321*
2008 Service Block	1	12593055*

\*Requires that the distributor, ignition coil and other minor bolt-on parts be transferred from the original engine.

## NMHG 2.0 & 2.2L Lift Trucks

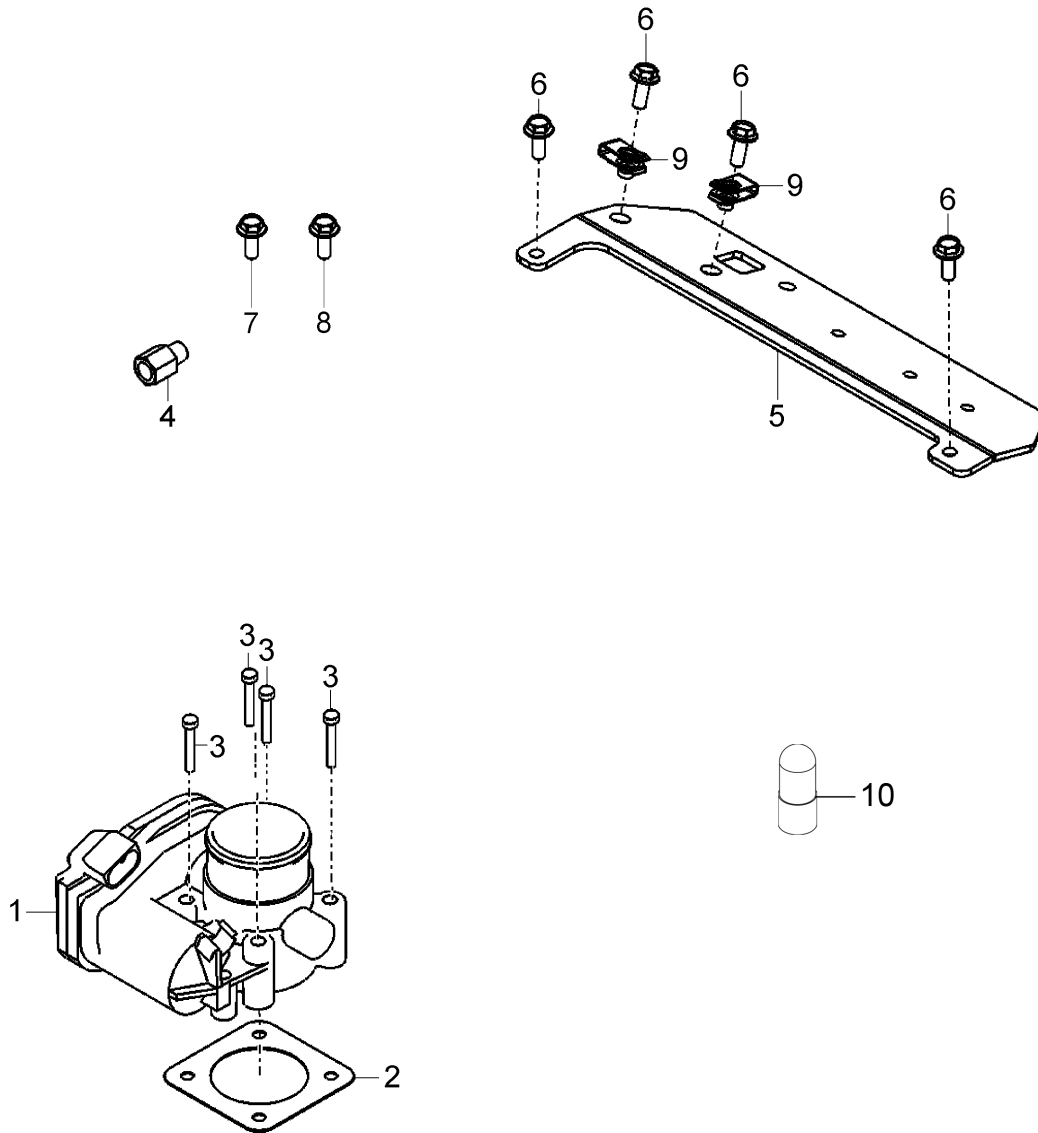
### MIXER AND THROTTLE BODY ASSEMBLY (LPG, 2007-2008)



**MIXER AND THROTTLE BODY ASSEMBLY (LPG, 2007-2008)**

Item#	Description	Qty	Part Number
1	Adapter, Nipple Tube Fitting (Oil Sender)	1	A4-50175-001
2	Screw, Hex Cap, MAP Sensor M4x16	2	S1-30295-0416
3	O-Ring	1	S3-1524-005
4	Screw, SHCS-w/Sealant Lock	4	S1-50237-12-0690
5	Nut, Clip M6	2	N1-50181-0640
6	Seal, Air Intake (IAT) Sensor	1	S3-50236-001
7	Screw, Hex Flange, M6 X 16MM	4	S1-30871-02-0616
8	Gasket, Throttle-Mixer, 100, 125	1	G1-11
9	Throttle Body 40 mm, BOSCH	1	E1312100
10	O-ring Nitrile	1	S3-1524-004
11	Gasket, BOSCH TBI	1	G1-50449-001
12	Sleeve, Plastic BOSCH Throttle	1	S6-30976-001
13	Screw, M6x10 mm	4	S1-50237-21-0548
14	Mixer, 60 Series	1	FT60M-30741-52-005
15	Pin Retainer (also used on EPR)	1	P1-30559
16	Brkt, Relay NACCO Series III	1	7370840
17	Screw	6	S1-50237-41-0512
18	Fitting, 1/8 NPT 3/8Hs 90El Nyl	1	F4-12
19	Plug, 1/8 NPT Hex Hd Stl Oxd	1	P3-46
20	Screw, 1/4x28 x 5/16	2	S1-69
21	Cover, Air Intake	1	NSS
22	Adapter, Mixer to Throttle	1	NSS
23	Bracket, Air Box Support	1	B4-50233-001
24	Screw, Hex Flange, M10 x 18mm	1	S1-30871-04-1018

## THROTTLE BODY (GASOLINE, 2007-2008)

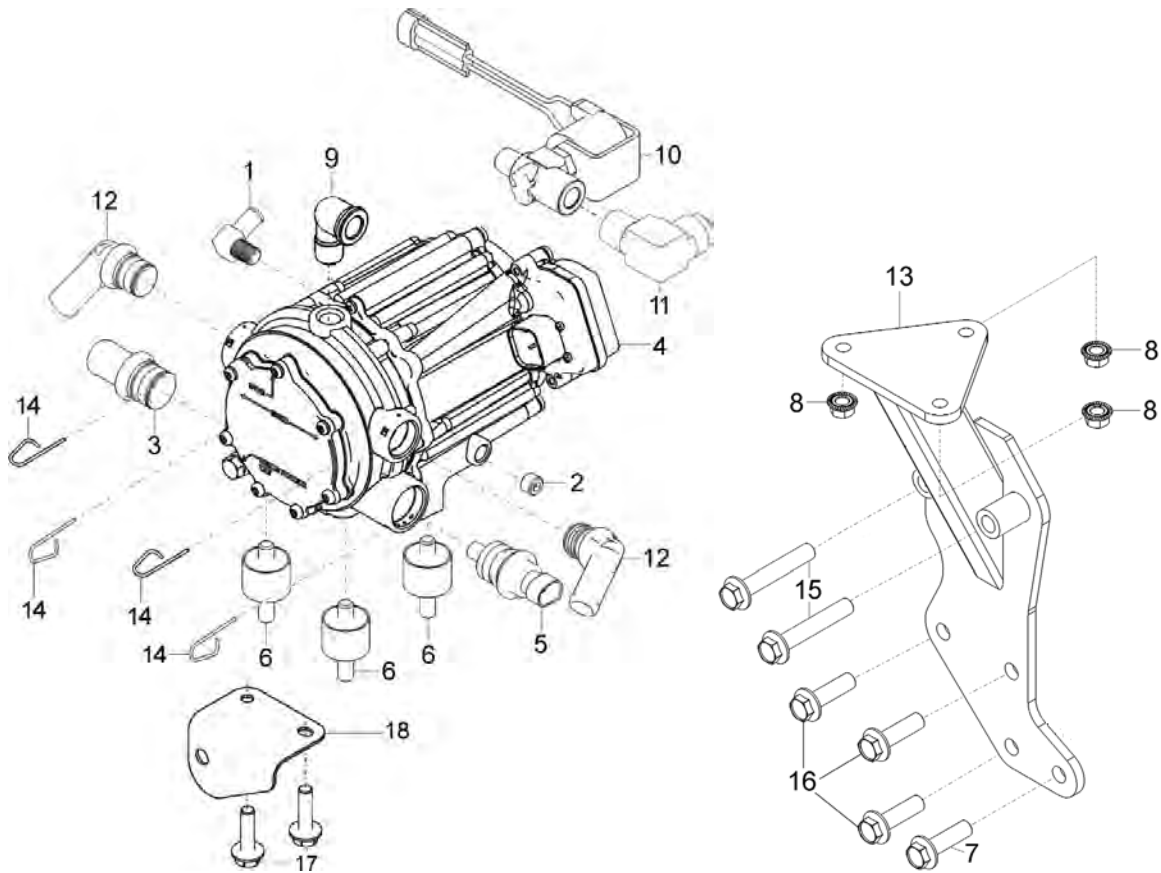


Item #	Description	Qty	Part Number
1	BOSCH Throttle Body 40 mm	1	E1312100
2	Gasket, BOSCH TBI	1	G1-50449-001
3	Bolt, M6 X 1.0 X 50 mm	4	S1-30295-0650
4	Adapter, Nipple Tube Fitting	1	A4-50175-001
5	Bracket, Relay NACCO Series III	1	7370840
6	Screw, Hex Flange, M6 X 16 mm	4	S1-30871-02-0616
7	Screw, M6x10 mm	4	S1-30871-02-0610
8	Screw, Hex Flange, M8 X 10MM	1	S1-30871-02-0810
9	Nut, Clip M6	1	N1-50181-0640
10	5/16" Rubber Cap for unused Intake Manifold fitting.	1	C2-10760-003

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



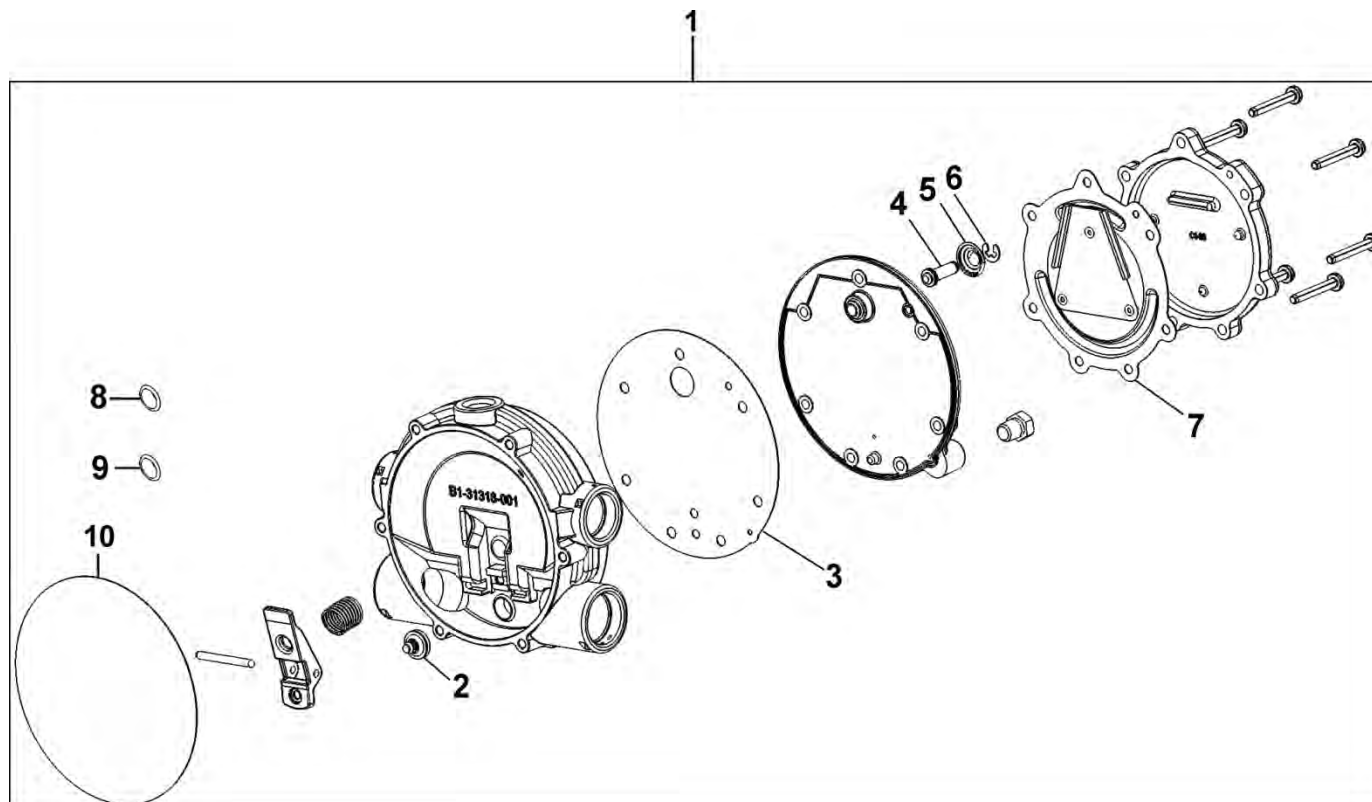
## EPR ASSEMBLY (LPG, 2007-2008)



Item #	Description	Qty	Part Number
1	Fitting, 1/8 NPT X 3/8 H 90° EL NYL	1	F4-12
2	Plug, 1/8 NPT 3/16 Hex SCH Brass	1	P3-46
3	Fitting, Assy., Straight, 3/4"	1	AF4-31193-001
4	Electronic Pressure Regulator, (EPR)	1	EPR-50388-001
5	Sensor, Fuel Temperature	1	AS8-31353-001
6	Vibration Mounts	3	R5-50080-002
7	Screw, Hex Flange-M10X1.25X35	1	S1-30871-04-1035
8	Nut-Hex Flange	3	N1-30876-M08
9	Fitting, 1/4 NPT Street 90 EL Brass	1	F4-16238-1
10	Valve, LPG Shut-off	1	ET98-30515-001
11	Fitting, 1/4 NPT 3/8 Flare Brass 90°	1	F4-25
12	Fitting, Ass'y, 70-degree 5/8"	2	AF4-30614
13	Bracket, EPR	1	7176720
14	Pin Retainer (also used on Mixer)	4	P1-30559
15	Screw, Hex Flange-M10X1.25X60	2	S1-30871-04-1060
16	Screw, Hex Flange	3	S1-30871-04-1030
17	Screw, Hex Flange, M6-1.0 X 12mm	2	S1-30871-02-0612
18	Bracket, Retaining Hose	1	B4-50319-001

Note: Where applicable, any product underlined and in **red text** is obsolete. Visit page 6 for support.

## EPR REGULATOR REPAIR (LPG, 2007-2008)

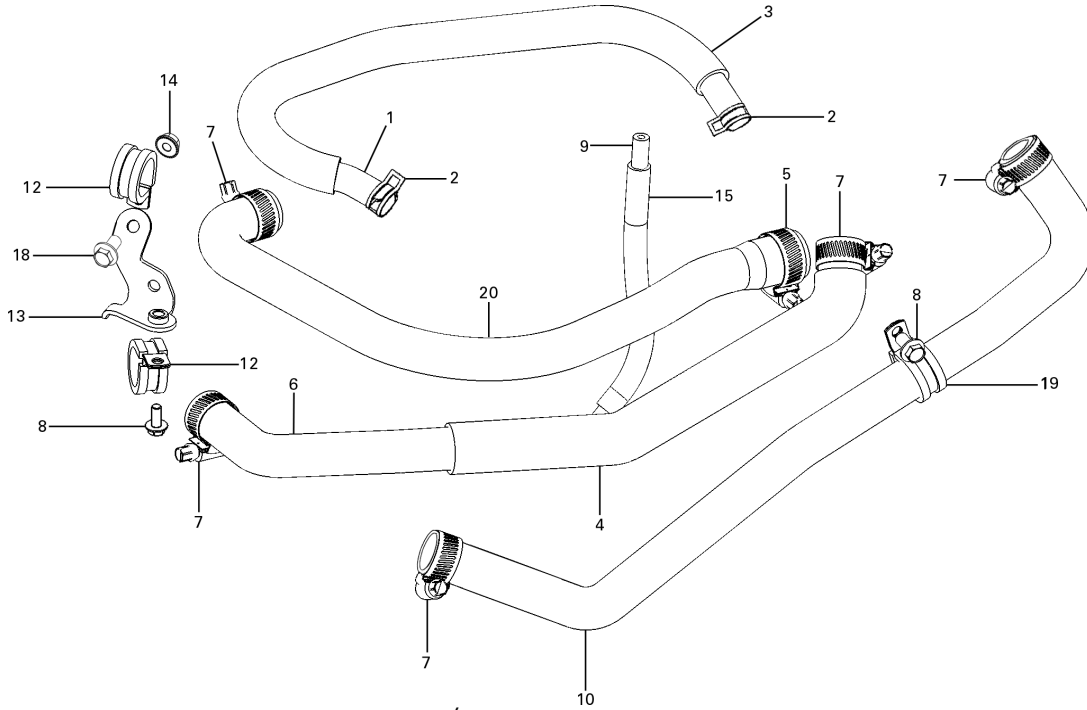


## EPR REGULATOR REPAIR (LPG, 2007-2008)

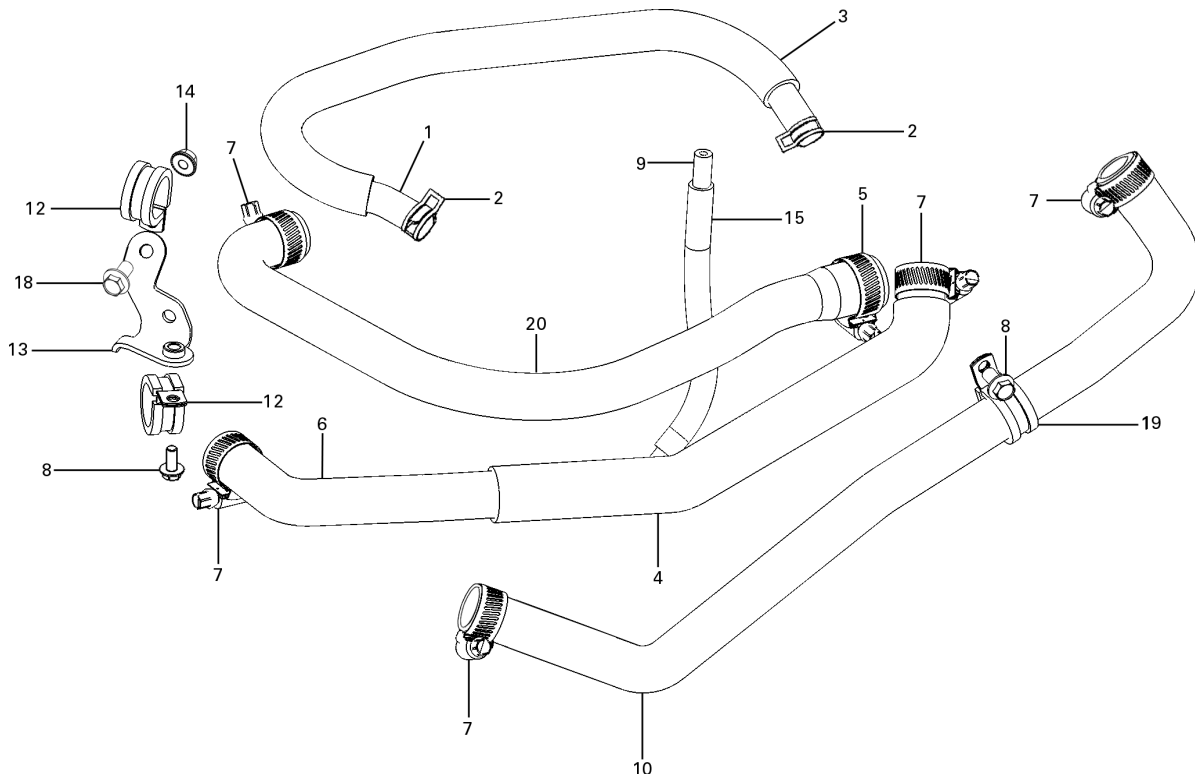
Item#	Description	Qty	Part Number
1	Kit, Minor Repair (Includes items 2-10 only)	1	RK-EPR-3
	Kit, Major (Includes All parts shown in box, assembled)	1	RK-EPR-4
2	Seat, Secondary	1	NSS
3	Gasket, Body Secondary	1	NSS
4	Pin, Primary	1	NSS
5	Spring, Primary	1	NSS
6	Clip, Primary	1	NSS
7	Diaphragm, Primary	1	NSS
8	O-ring	4	NSS
9	O-ring	4	NSS
10	Seal, Clamp Plate, EPR	1	NSS

## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (LPG, 2007-2008)

For Engines With a 10mm (3/8"), 90° Coolant Hose Fitting:



For Engines With a 5/8", Straight Coolant Hose Fitting:



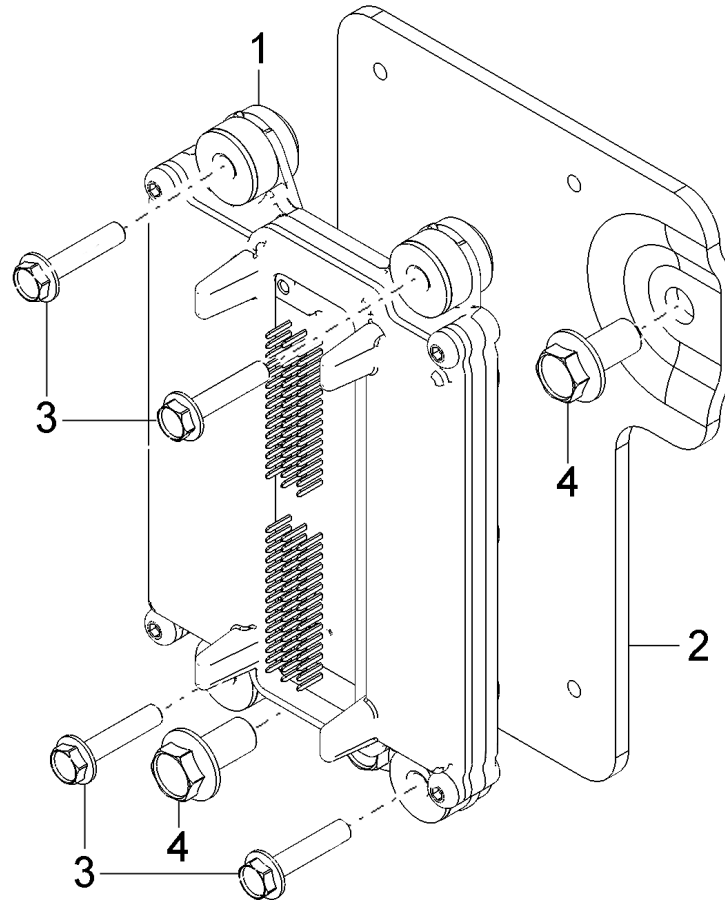
## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (LPG, 2007-2008)

Item #	Description	Qty	Part Number
1	Hose, Balance 3/8"	1	H1-19253-010
2	Clamp, Hose	2	C2-16664-1
3	Conduit, Round Convolute 5/8" ID	1	W3-50302-004
4	Conduit, Round Convolute	1	NSS
5	Clamp, Hose	1	C2-14106-006
6	Hose, Formed-Coolant	1	H1-50253-001
7	Clamp, Hose	5	C2-14106-006
8	Screw, Hex Flange M6 X 16MM	2	S1-30871-02-0616
9	Hose, Vacuum 5/32"	1	H1-19253-011
10	Hose 5/8" ID Formed*	1	H1-50253-001
	Hose, Formed, Coolant**	1	H1-50320-001
11	Hose Coolant ID 3/8"	1	H1-19255-018
12	Clamp, Loop Cushion	2	C2-16653-6
13	Bracket, Hose Support	1	B4-50260-001
14	Nut, Hex Flange Serrated	1	N1-30876-M06
15	Conduit, Round Convolute	1	NSS
16	Adapter 5/8-3/8*	1	A4-50082
17	Clamp, Hose*	2	C2-14106-018
18	Screw, Hex Flange M10x18mm Fine	1	S1-30871-04-1018
19	Clamp, Tubing 7/8" ID	1	C2-16653-6
20	Hose, Fuel (non-1 Ton)	1	H1-50232-001
	Hose, Fuel (1 Ton)	1	H1-50232-002

\*Used on engines with a 10mm (3/8"), 90° coolant hose fitting (2007 & early 2008 production).

\*\* For engines with a 5/8", straight coolant hose fitting (later and post 2008 production).

## ENGINE ELECTRICAL (LPG & GASOLINE, 2007-2008)



**ECM/Calibration Application Table**

Hardware Module Part Number	Gov RPM	Engine/Fuel	NMHG ECM Part Number
E1687002	2400	2.0 LPG	8539149
E1687002	2700	2.0 LPG	8539150
E1687001	2400	2.0 GAS	8539155
E1687001	2700	2.0 GAS	8539156
E1687002	2700	2.2 LPG	8539151
E1687001	2700	2.2 GAS	8539157
E1687006	2400	2.0 LPG	8546571
E1687006	2700	2.0 LPG	8546572
E1687006	2700	2.2 LPG	8546573
E1687007	2400	2.0 GAS	1702980
E1687007	2700	2.0 GAS	1702981
E1687007	2700	2.2 GAS	1702982

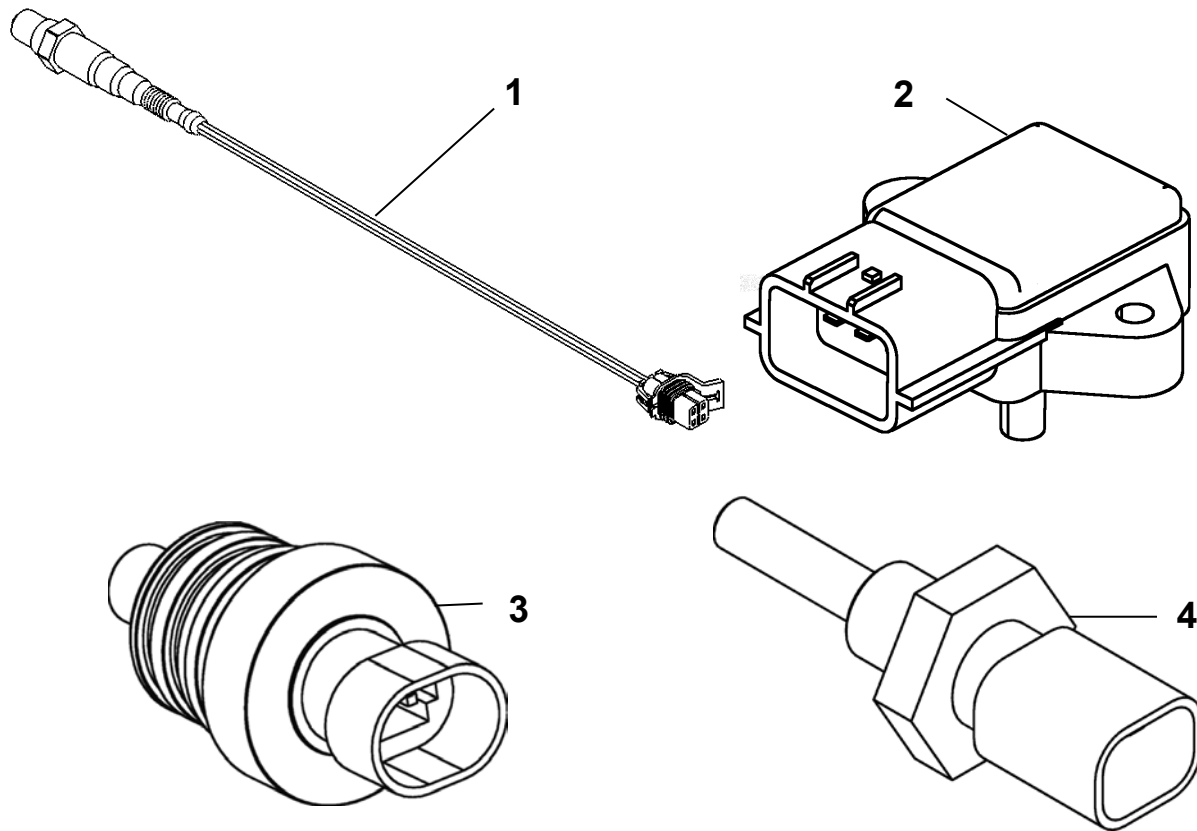
## NMHG 2.0 & 2.2L Lift Trucks

### Spectrum Series III



Item#	Description	Qty	Part Number
1	Engine Control Module Blank - See Table Above for part number and calibrations	1	See Table Above
2	Bracket, ECM	1	7370830
3	Screw, Hex Flange-M6 X 1 X 30	4	S1-30871-02-0630
4	Screw, Hex Flange, M10 x 1 x 18mm	2	S1-30871-04-1018
Wire Harness (Not Shown)	Engine Harness, Main	1	E1741000(LPG) (Gasoline is NLA)
VSW 5A (Not Shown)	Fuse, Mini-Fuse 5A	1	7380660
EPR 10A (Not Shown)	Fuse, Mini-Fuse 10A	1	914584
MAXI 50A (Not Shown)	Fuse, Maxi-Fuse 50A	1	7381280

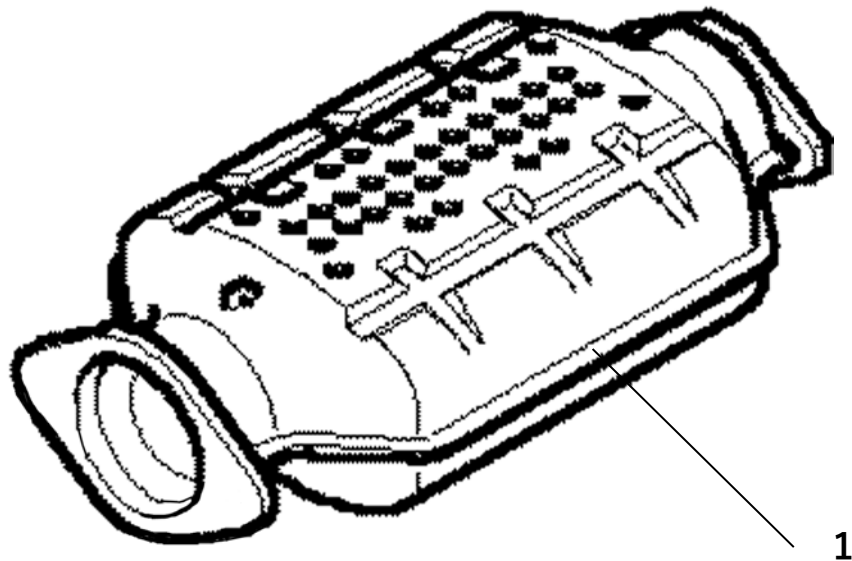
## SENSOR LPG (2007-2008)



Item #	Description	Qty	App	Part Number
1	Sensor, Oxy BOSCH LSF4 AU	2	LPG & GASOLINE	S8-50234-001
2	Sensor, MAP	1	LPG	S8-50077
3	Sensor, Air Temp (IAT)	1	LPG	See EPR*
4	Sensor, Coolant Temp	1	LPG & GASOLINE	S8-50079

\*See EPR Assembly for Fuel Temp Sensor

## EXHAUST SYSTEM (LPG & GASOLINE, 2007-2008)



Item#	Description	Qty	App	Part Number
1	Catalytic Converter	1	All	7332570



## WIRE HARNESS REPAIR (LPG, 2007-2008)

The individual wire harness connectors listed below replace connectors on P/N E1741000 Spectrum Series III Wire Harness. Each connector or “pigtail” is pre-wired and tested.

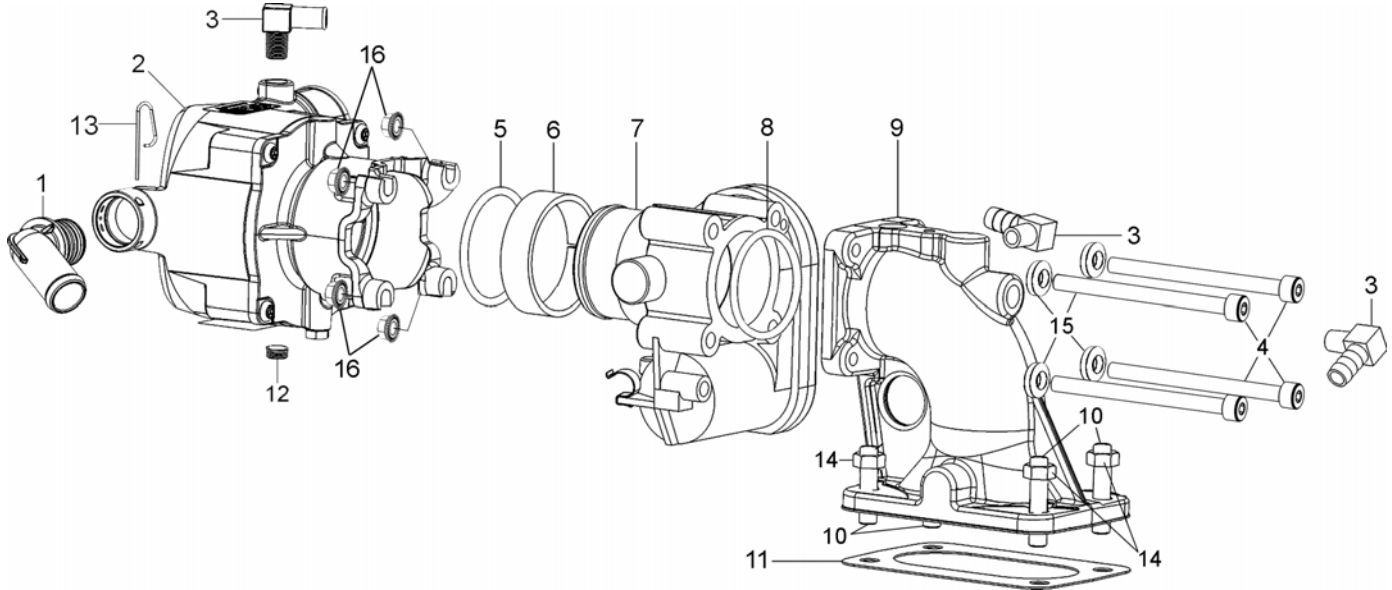
Connector#	IMPCO P/N	Connector Description
C003	PT-E1741000-C003	ECM Test Port
C004	PT-E1741000-C004	LPG Shut-off Valve
C005	PT-E1741000-C005	LPG Temp Sensor
C006	PT-E1741000-C006	Post-Cat HEGO
C007	PT-E1741000-C007	ECT
C008	PT-E1741000-C008	IAT
C009	PT-E1741000-C009	MAP
C010	PT-E1741000-C010	Oil Pressure Sensor
C011	PT-E1741000-C011	Ground
C012	PT-E1741000-C012	LPG Low Pressure Sensor
C013	PT-E1741000-C013	Air Filter Restriction Indicator
C015	PT-E1741000-C015	Pre-Cat HEGO
C016	PT-E1741000-C016	VIC 8-Pin
C017	PT-E1741000-C017	VIC 6-Pin
C018	PT-E1741000-C018	VIC 4-Pin
C019	PT-E1741000-C019	Diagnostic Connector
C020	PT-E1741000-C020	Ignition Suppressor
C021	PT-E1741000-C021	Cam Angle Sensor
C022	PT-E1741000-C022	EPR Interface
C023	PT-E1741000-C023	Starter Solenoid
C024	PT-E1741000-C024	Ignition Coil, Cyl #4
C025	PT-E1741000-C025	Ignition Coil, Cyl #3
C026	PT-E1741000-C026	Ignition Coil, Cyl #2
C027	PT-E1741000-C027	Ignition Coil, Cyl #1
C028	PT-E1741000-C028	Bosch Throttle Body
C029	PT-E1741000-C029	Alternator
C030	PT-E1741000-C030	Alternator (Ring Terminal)
C031	PT-E1741000-C031	Batt +
C032	PT-E1741000-C032	Fuse Holder
N/A	PT-E1741000-MAXI	Maxi Fuse Holder

## ENGINE ELECTRICAL (LPG & D/F)

Calibrated ECM Part Number	Calibration Number	Engine/Fuel	Governed Speed	Idle Speed
2071612	2071612H	2.0 LPG	2700	800
2091612	2091612J	2.0 Dual Fuel	2700	800

## 4.3L Generic Lift Trucks

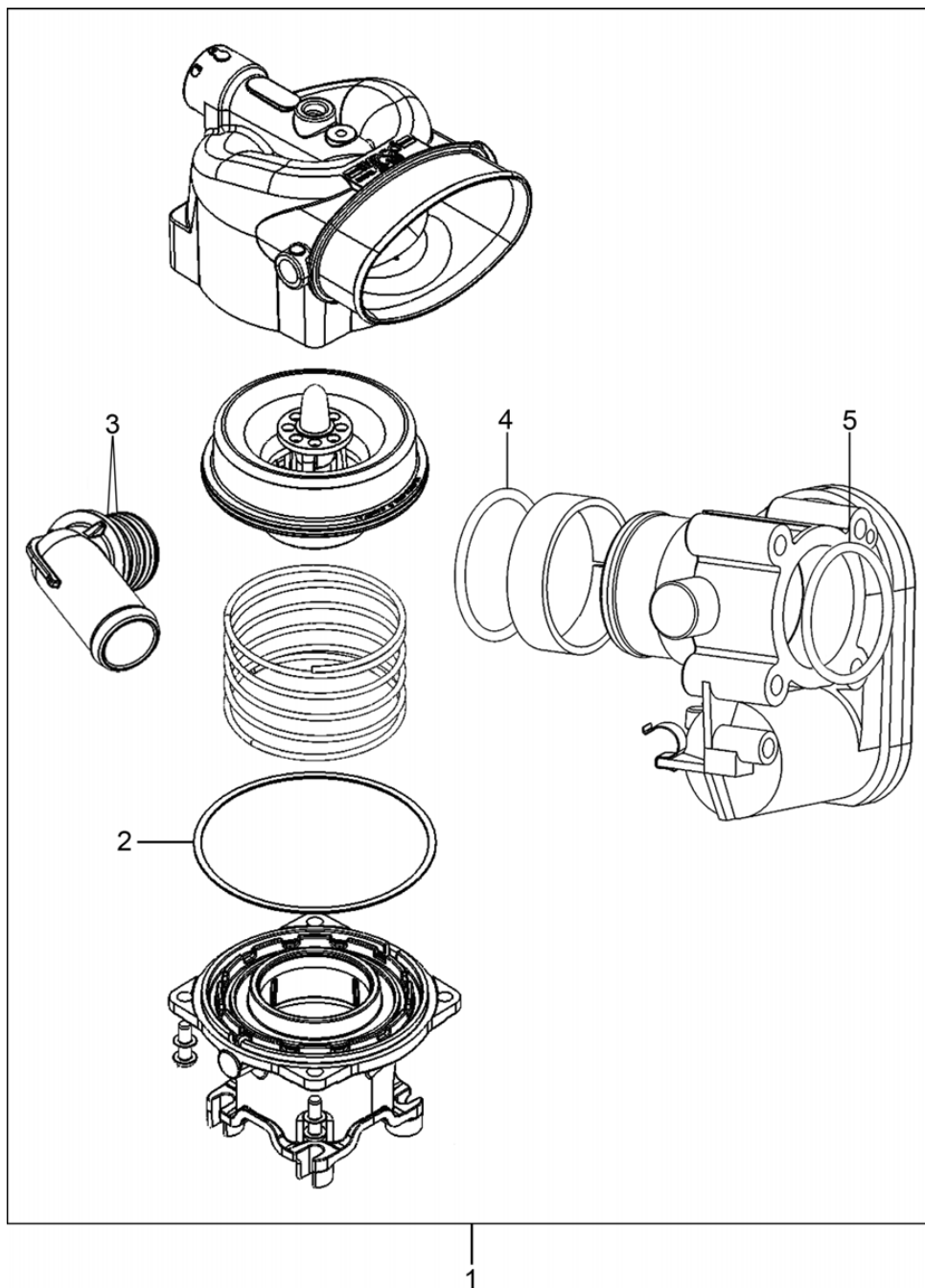
### MIXER AND THROTTLE BODY ASSEMBLY (2007-2008)



Item#	Description	Qty	Part Number
1	Fitting, 70-Degree, 3/4" OD	1	AF4-31197-001
2	Carburetor ASM, 20-150	1	FT150-30919-20-001
3	Fitting, 1/8 NPT 3/8 Hs 90 El Brass	3	401-02
4	Screw, Hex Sock Cap	4	S1-30295-0670
5*	O-Ring Nitrile, #225	1	S3-1524-004
6	Sleeve, Plastic Bosch Throttle	1	S6-30976-001
7	Bosch Throttle Body, 40mm	1	E1312100
8*	O-Ring Nitrile, #032	1	S3-1524-003
9	Adapter, Elbow, 4.3L Lx-Bos SIII LP	1	A3-30940-001
10	Stud, 5/16-18 X 1 3/4", Torx	4	32501396
11	Gasket, Carb Mounting, 2bbl, 4.3L	1	G1-50251-001
12	Plug, 1/8 NPT 3/16 Hex Sch Brass	1	P3-46
13	Retaining Pin	1	P1-30559
14	Nut, 5/16-18, Flanged	4	N1-30876-031
15	Washer, Conical, Spring 6mm	4	W1-31039-006
16	Nut, Hex, Flange Serrated M6 X 1.0"	4	N1-30876-M06

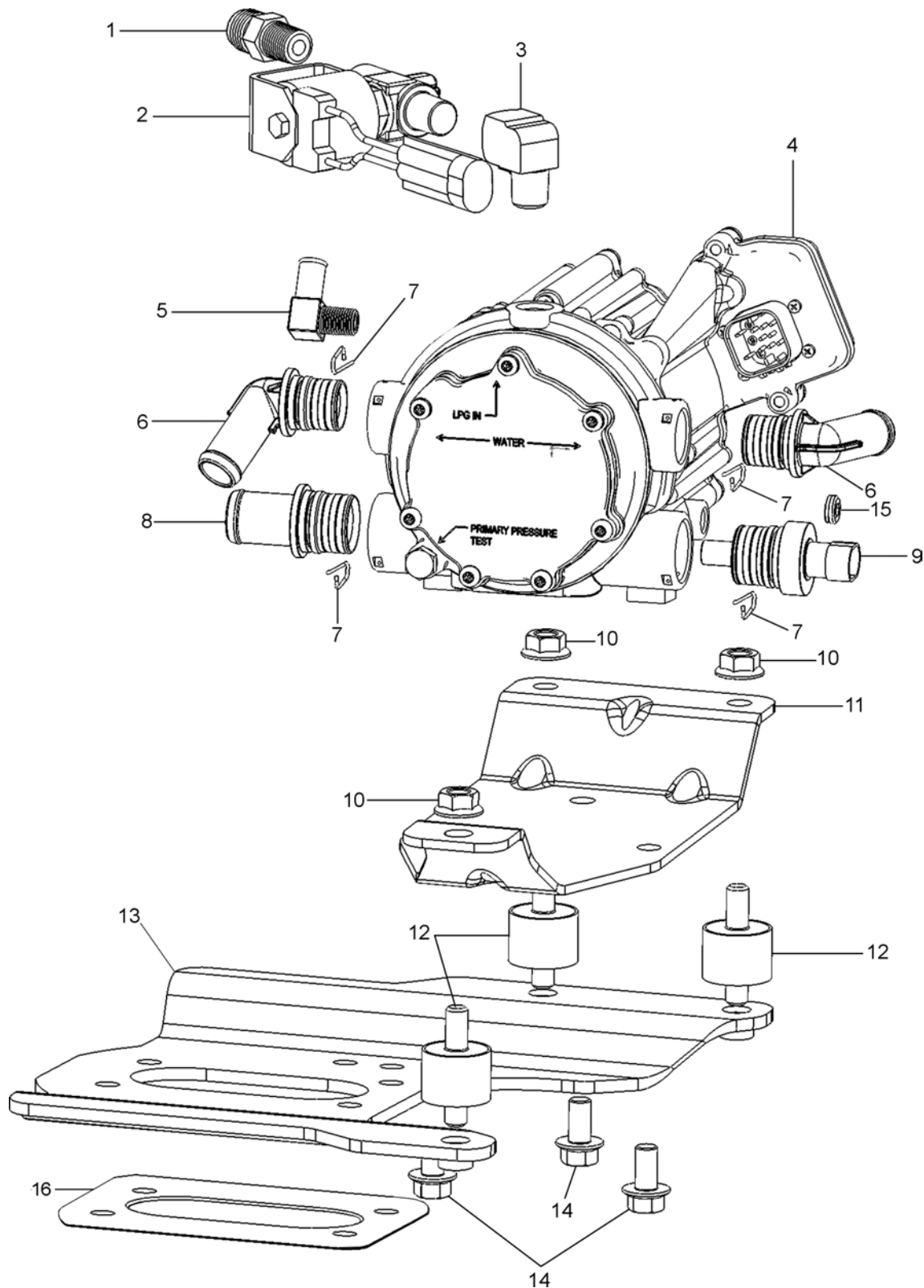
\*Included in Repair Kit RK-FT150

### MIXER REPAIR KIT (2007-2008)



Item#	Description	Qty	Part Number
1	(Includes Items 2-5)	1	RK-FT150
2	Gasket	1	G1-31252-150
3	O-Ring	2	S3-31195-001
4	O-Ring	1	S3-1524-004
5	O-Ring	1	S3-1524-003

### EPR ASSEMBLY (2007-2008)



## 4.3L Generic Lift Trucks

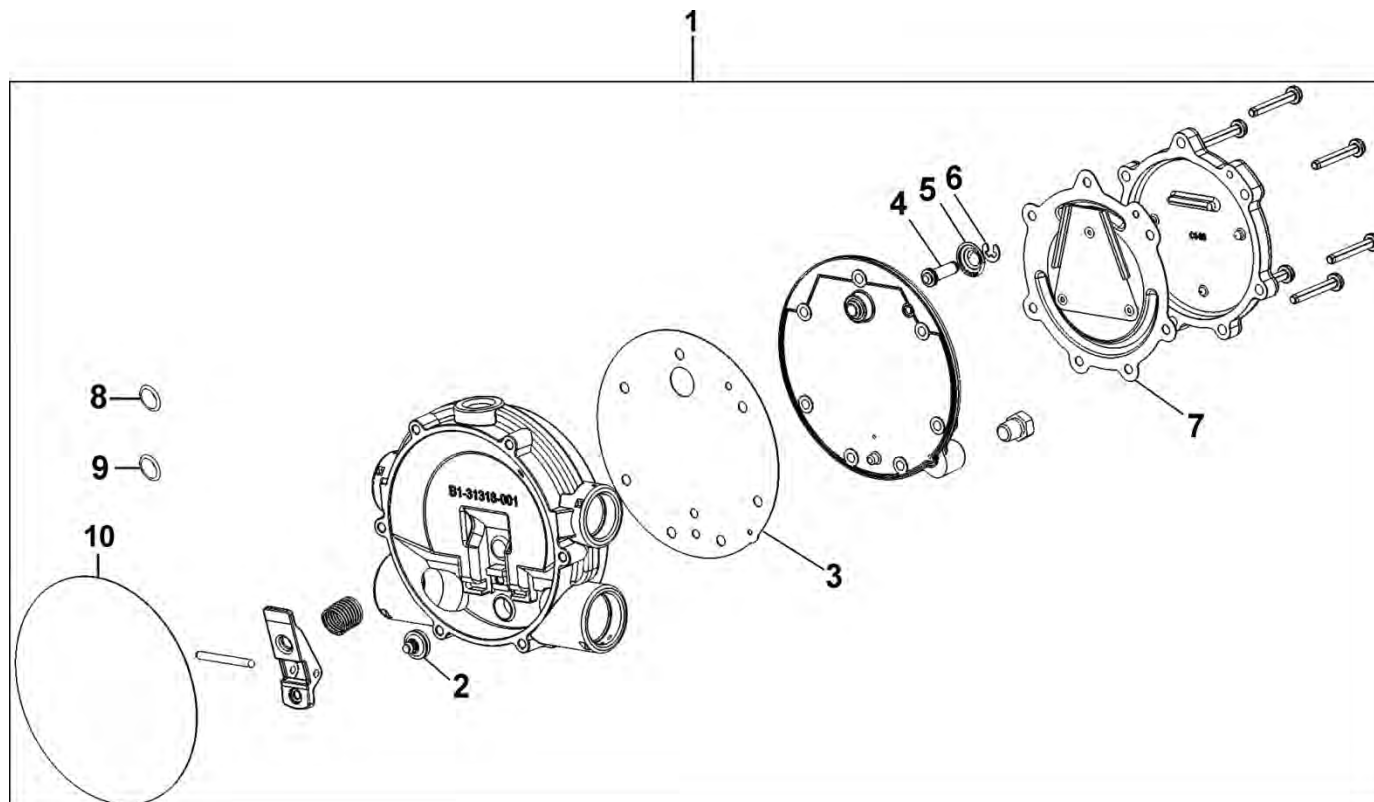
### Spectrum Series III



### EPR ASSEMBLY (2007-2008)

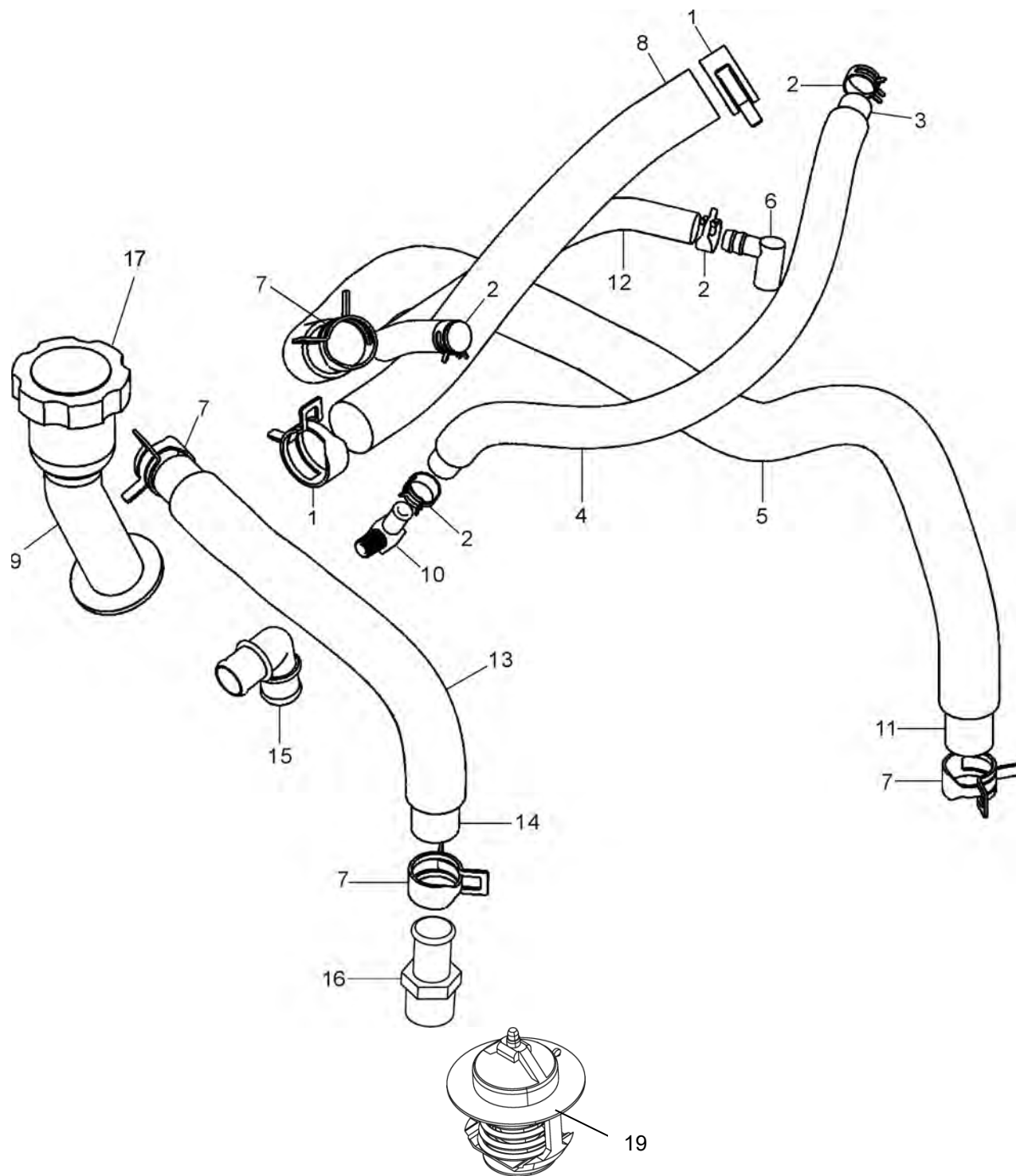
Item#	Description	Qty	Part Number
1	Fitting, ¼ NPT 3/8 Flare Brass	1	F4-14220
2	Valve, LPG Shut-Off	1	ET98-30515-001
3	Fitting, ¼ NPT Street 90 Elbow Brass	1	F4-16238-1
4	Electronic Pressure Regulator, EPR	1	EPR-50388-001
5	Fitting, 90 Deg. 1/8 NPT X 3/8	1	F4-12
6	Fitting Assembly, 70 Degree	2	AF4-30614
7	Retaining Clip	4	P1-30559
8	Fitting Ass'y, Straight, 3/4"Od	1	AF4-31193-001
9	Temperature Sensor Ass'y	See Sensors	
10	Nut, Hex Flange, Serrated	3	N1-30876-M08
11	Bracket, EPR-Upper	1	N/A
12	Mount Vibration, 2 Studs	3	R5-50080-002
13	Bracket, Mtg EPR, 2bbl, 4.3l	1	B4-50223-001
14	Screw, Hex Flange-M8x1.25x16	3	S1-30871-02-0816
15	Plug, 1/8 NPT 3/16" Hex Sch Brass	1	P3-46
16	Gasket, Carb Mounting, 2bbl, 4.3L	1	G1-50251-001

## REGULATOR REPAIR KIT (2007-2008)



Item#	Description	Qty	Part Number
1	Kit, Minor Repair (Includes items 2-10 only)	1	RK-EPR-3
	Kit, Major (Includes All parts shown in box, assembled)	1	RK-EPR-4
2	Seat, Secondary	1	NSS
3	Gasket, Body Secondary	1	NSS
4	Pin, Primary	1	NSS
5	Spring, Primary	1	NSS
6	Clip, Primary	1	NSS
7	Diaphragm, Primary	1	NSS
8	O-ring	4	NSS
9	O-ring	4	NSS
10	Seal, Clamp Plate, EPR	1	NSS

## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL & THERMOSTAT (2007-2008)



## 4.3L Generic Lift Trucks

Spectrum Series III



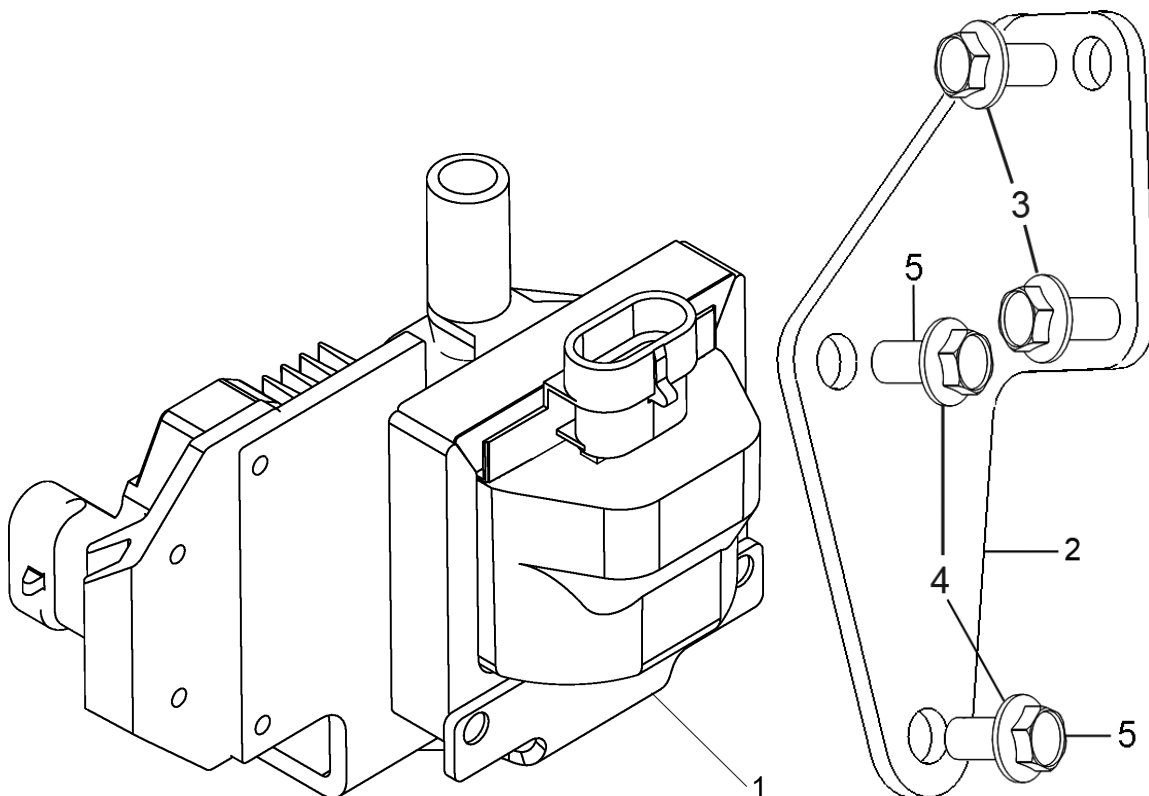
### HOSE ASSEMBLIES COOLANT/VACUUM/FUEL & THERMOSTAT (2007-2008)

Item#	Description	Qty	Part Number	GM Part Number
1	Clamp, Hose, 19mm	2	C2-16664-4	
2	Clamp, Hose, .88 OD	4	C2-16664-1	
3	Hose, 3/8" Fuel/Oil 13.88"	1	H1-19253-015	
4	Conduit, Convolute	1	NSS	
5	Conduit, Convolute	1	NSS	
6	Fitting, Elbow, 90 Deg PCV	1	F4-30912-001	
7	Clamp, Hose, .69 OD	4	C2-16664-2	
8	Hose, 3/4" ID Fuel Oil 11.75"	1	H1-19253-016	
9	Riser, Oil Fill 4.3L	1		12570623
10	Fitting 1/8 NPT 3/8 90 Elbow Nylon	1	F4-12	
11	Hose, 5/8" ID Coolant 29.50"	1	H1-19255-017	
12	Hose, 3/8" Fuel Oil 11.75"	1	H1-19253-014	
13	Conduit, Convolute	1	NSS	
14	Hose, 5/8" Coolant 12.25"	1	H1-19255-016	
15	Elbow, Vent, GM	1		1263193
16	Fitting, Barb St. 1/2 x 5/8	1	7171440	
17	Oil Fill Cap	1		12573336

### THERMOSTAT

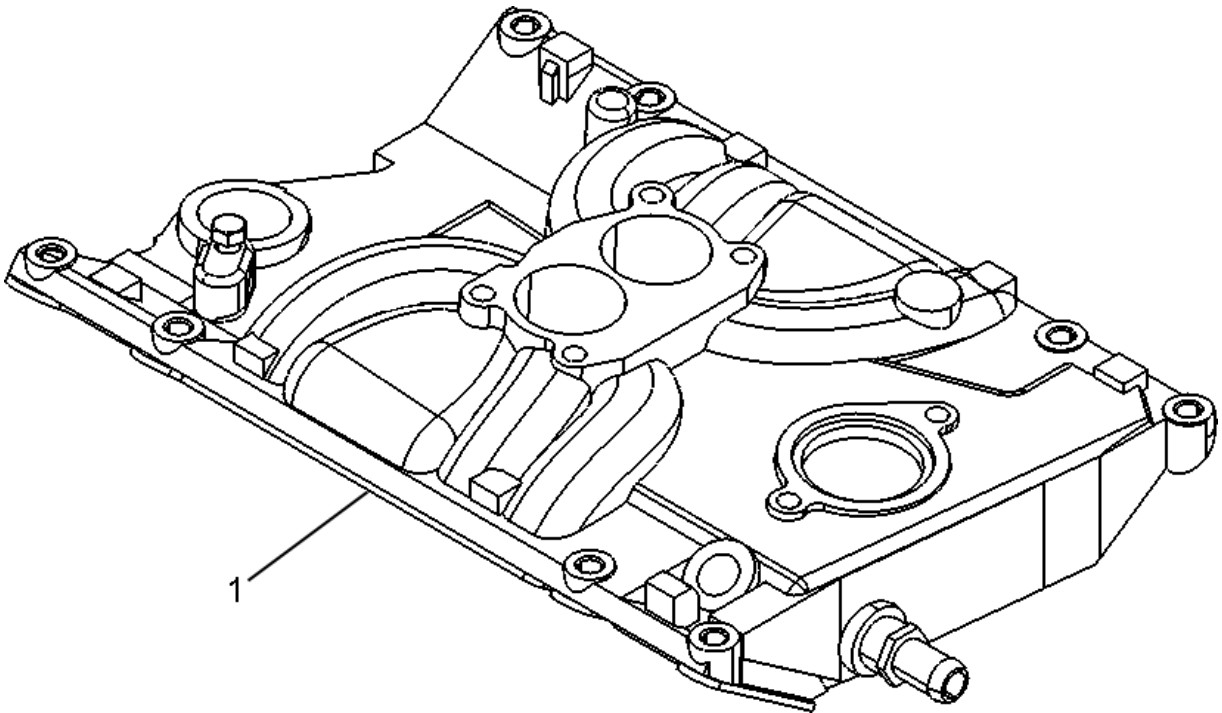
Item#	Description	Qty	GM Part Number
18	Thermostat, 170°	1	10202456



**IGNITION MODULE/COIL (2007-2008)**

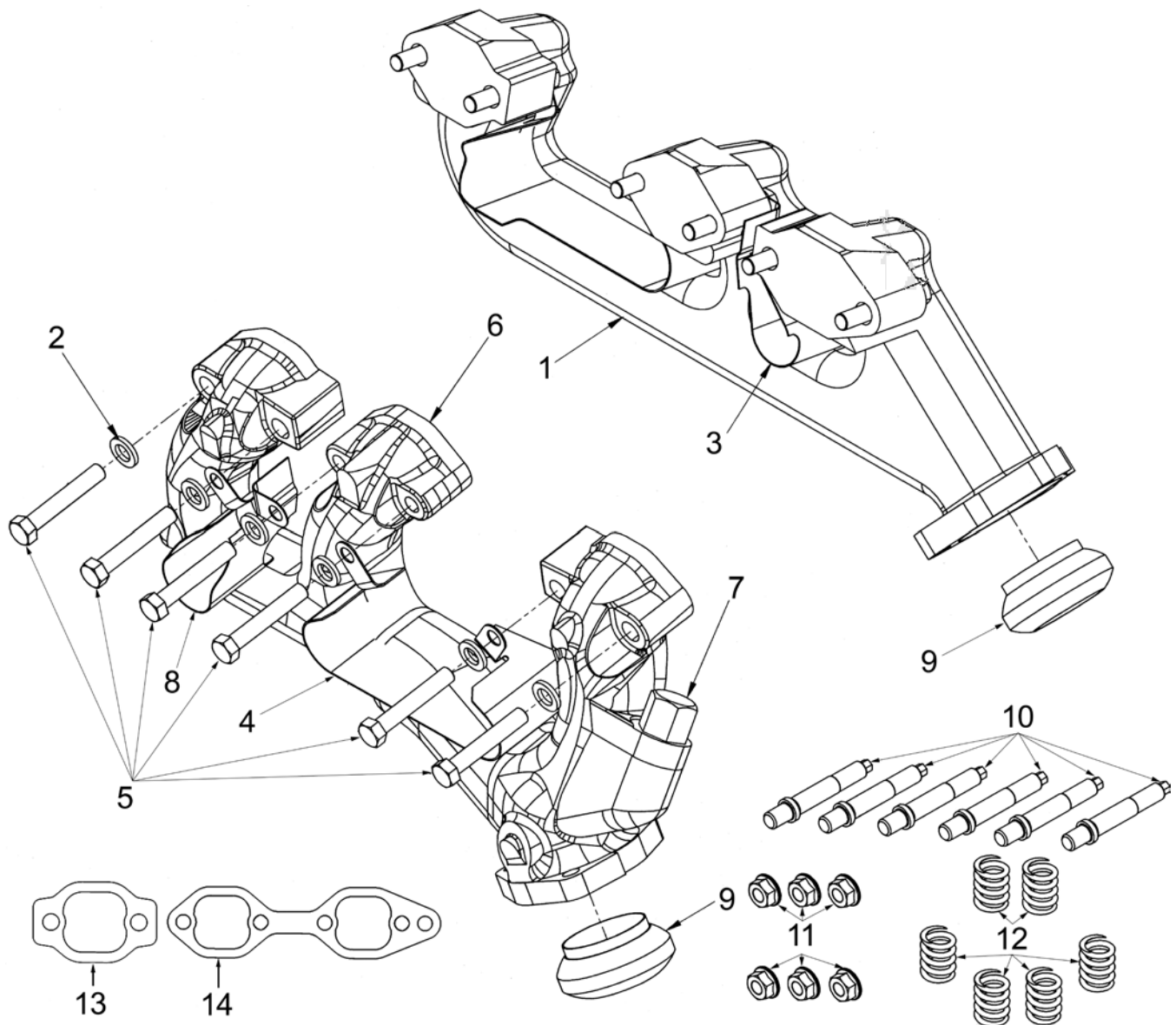
Item#	Description	Qty	Part Number	GM Part Number
1	Ignition Control Module & Coil	1		93804365
2	Bracket, Ignition Coil	1	B4-50092-001	
3	Screw Hex Flange M8-1.25 x 16MM	2	S1-30871-02-0816	
4	Washer, Lock 3/8"	2	93300000	
5	Screw, Hex Head SEMS 3/8"-16 x 3/4"	2	90305250	

**INTAKE MANIFOLD (2007-2008)**



Item #	Description	Qty	GM Part Number
1	Intake Manifold	1	12595828

### EXHAUST MANIFOLD (2007-2008)



## 4.3L Generic Lift Trucks

### Spectrum Series III



### EXHAUST MANIFOLD (2007-2008)

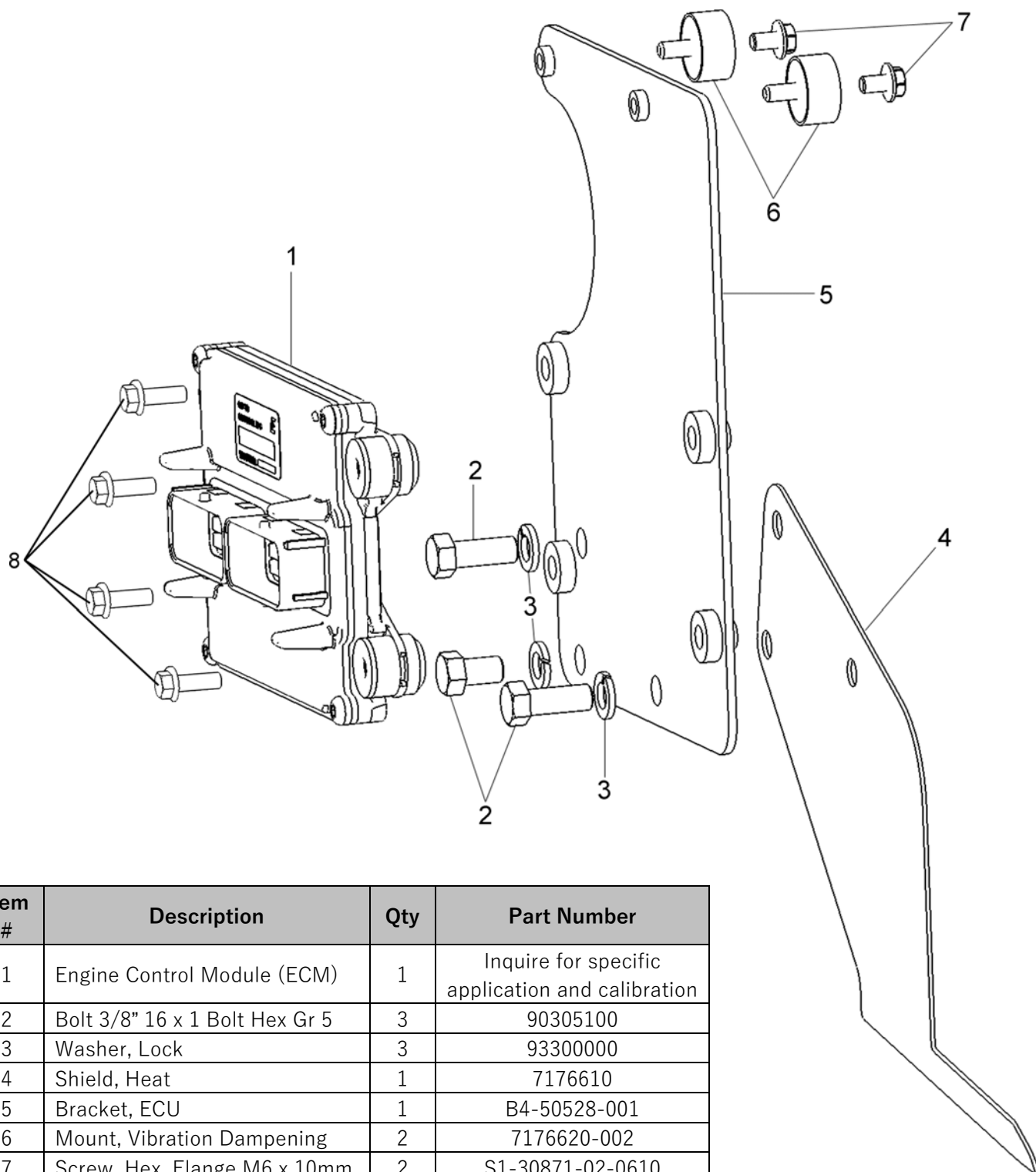
Item #	Description	Qty	Part Number	GM Part Number
1	Exhaust Manifold, RH	1		12550172
2	Washer, Exhaust Manifold	12	W1-50595-037	
3	Shield, Spark Plug Single	1		1015861
4	Shield, Spark Plug Double	2		12551505
5	Bolt, 3/8" 16 x 2 1/4" Hex Gr 5	12	90305225	
6	Exhaust Manifold, LH	1		12552325
7	Cap, Exhaust Manifold	1	7151570	
8	Shield, Spark Plug Single	1	NSS	
9	Gasket, Exhaust Flange 4.3L	2		12555091
10	Stud, Exhaust Manifold	6		15677737
11	Nut, M10 x 1.5	6	7151900	
12	Spring, Exhaust Manifold	6	7151890	
13	Gasket, Exhaust Manifold	2	NSS	
14	Gasket, Exhaust Manifold	2	NSS	

## 4.3L Generic Lift Trucks

### Spectrum Series III



#### ENGINE CONTROL MODULE (2007-2008)



Item #	Description	Qty	Part Number
1	Engine Control Module (ECM)	1	Inquire for specific application and calibration
2	Bolt 3/8" 16 x 1 Bolt Hex Gr 5	3	90305100
3	Washer, Lock	3	93300000
4	Shield, Heat	1	7176610
5	Bracket, ECU	1	B4-50528-001
6	Mount, Vibration Dampening	2	7176620-002
7	Screw, Hex, Flange M6 x 10mm	2	S1-30871-02-0610
8	Bolt, M6-1.0 x 32 M	4	S1-30871-02-0635

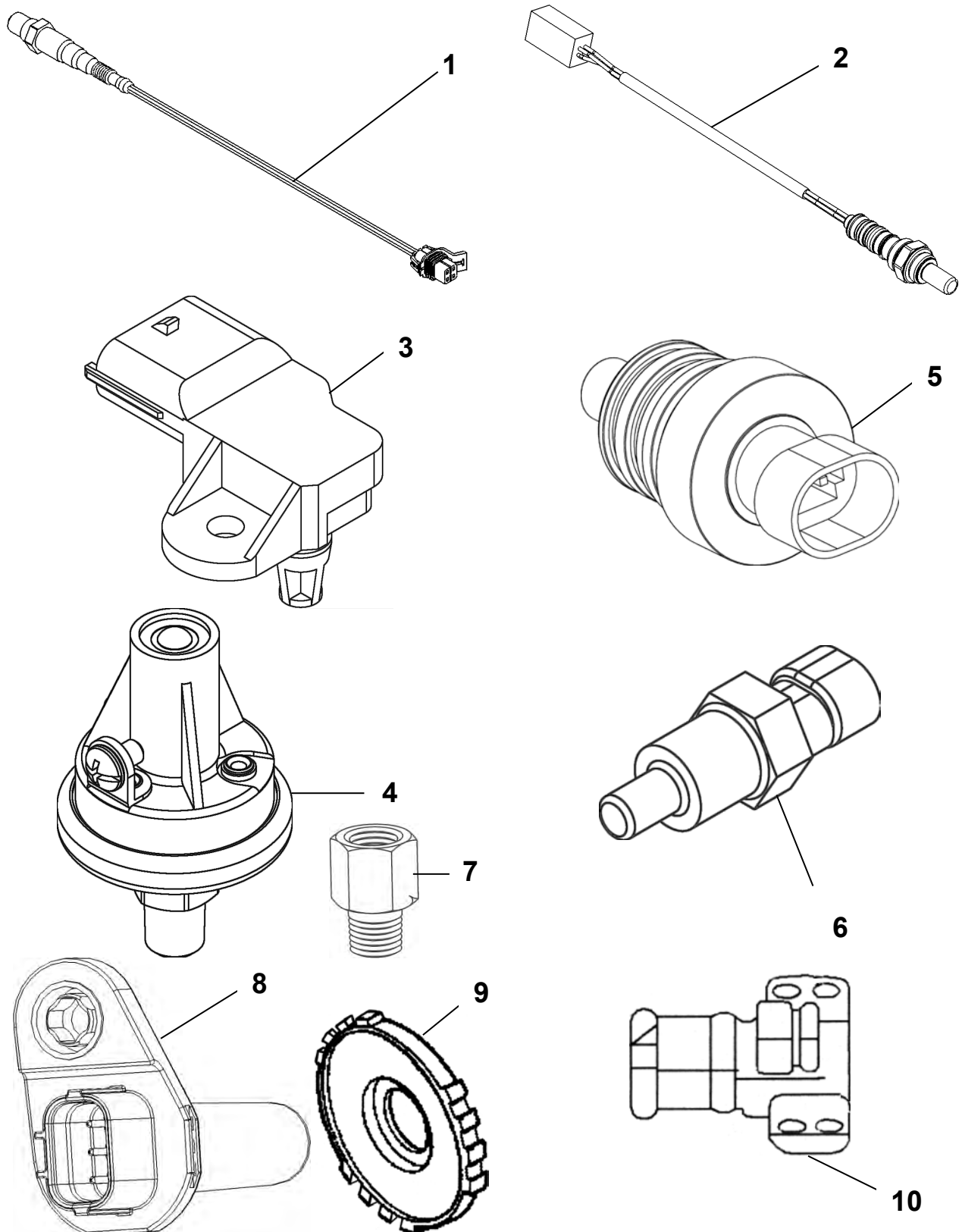
Note: Where applicable, any product underlined and in **red text** is obsolete. Visit page 6 for support.

## 4.3L Generic Lift Trucks

### Spectrum Series III



#### SENSORS (2007-2008)



Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## 4.3L Generic Lift Trucks

### Spectrum Series III



### SENSORS (2007-2008)

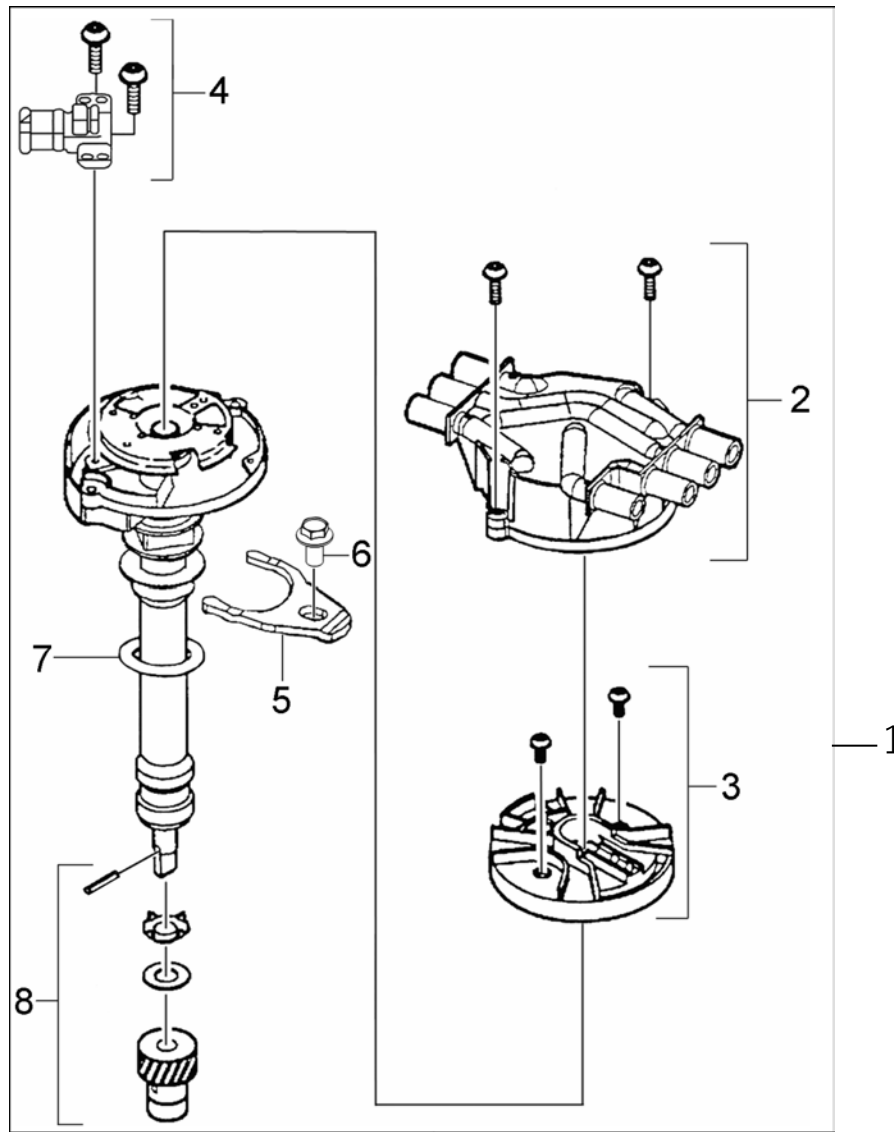
Item #	Description	Qty	Part Number	GM Part Number
1	HEGO, Post Catalyst	1	S8-50234-001	
2	HEGO, Pre-Catalyst	1	7176700	
3	Sensor, TMAP	1	E1466001	
4	Oil Pressure Switch	1	S10-50352-001	
5	LPG Temp Sensor	1	AS8-31353-001	
6	Coolant Temp Sensor	1		15326386
7	Adapter, Oil Sender	1	7242360	
8	Crank Sensor	1		12595966
9	CKP Sensor Reluctor Ring	1		93442981
10	Camshaft Sensor	1		10485432

## 4.3L Generic Lift Trucks

### Spectrum Series III



#### DISTRIBUTOR (2007-2008)

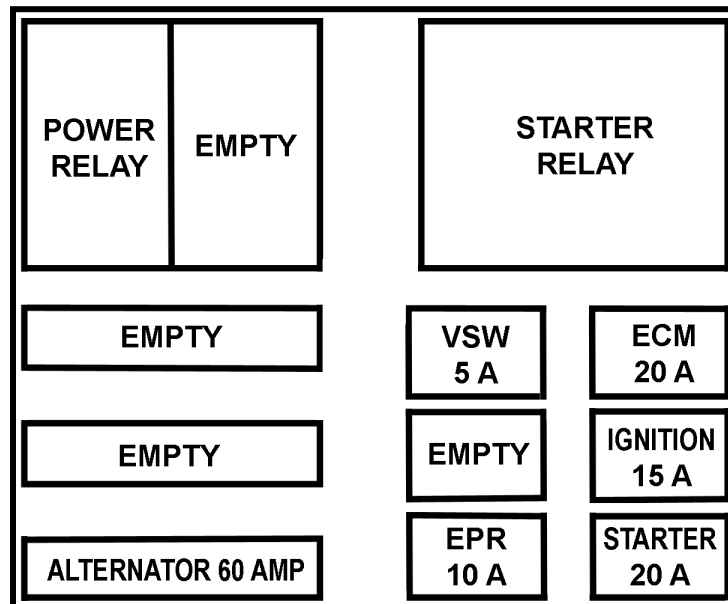


Item #	Description	Qty	IMPCO Part Number	GM Part Number
1	Distributor Ass'y (Complete-includes 2-9 below)	1		12598210
2	Cap, Distributor (Includes Screws)	1		10452458
3	Rotor, Distributor (Includes Screws)	1		10452457
4	Camshaft Sensor (Includes Screws for Cam Sensor, Cap and Rotor)	1		10485432
5	Clamp, Distributor	1	7245430	
6	Distributor Hold-down Bolt	1	S1-30871-01-0825	
7	Gasket, Distributor	1		10108445
8	Gear, Distributor Kit	1		10457356

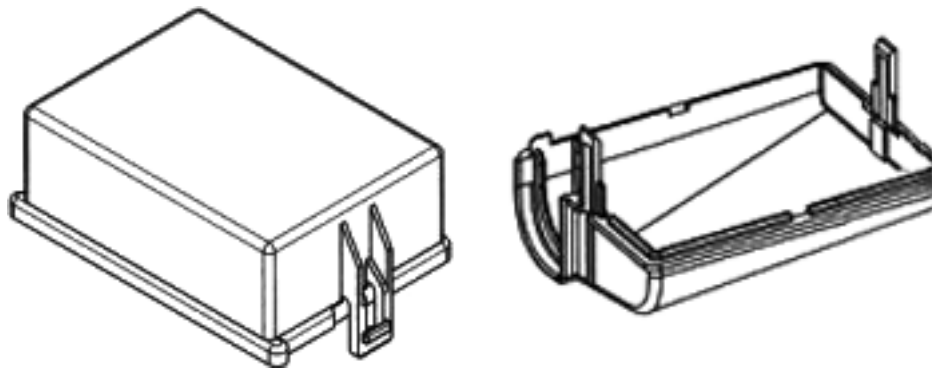
Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



**WIRE HARNESSES/ENGINE ELECTRICAL/FUSE BOX (2007-2008)**



**Fuse Box Layout**



**Fuse Box Covers**

## 4.3L Generic Lift Trucks

Spectrum Series III

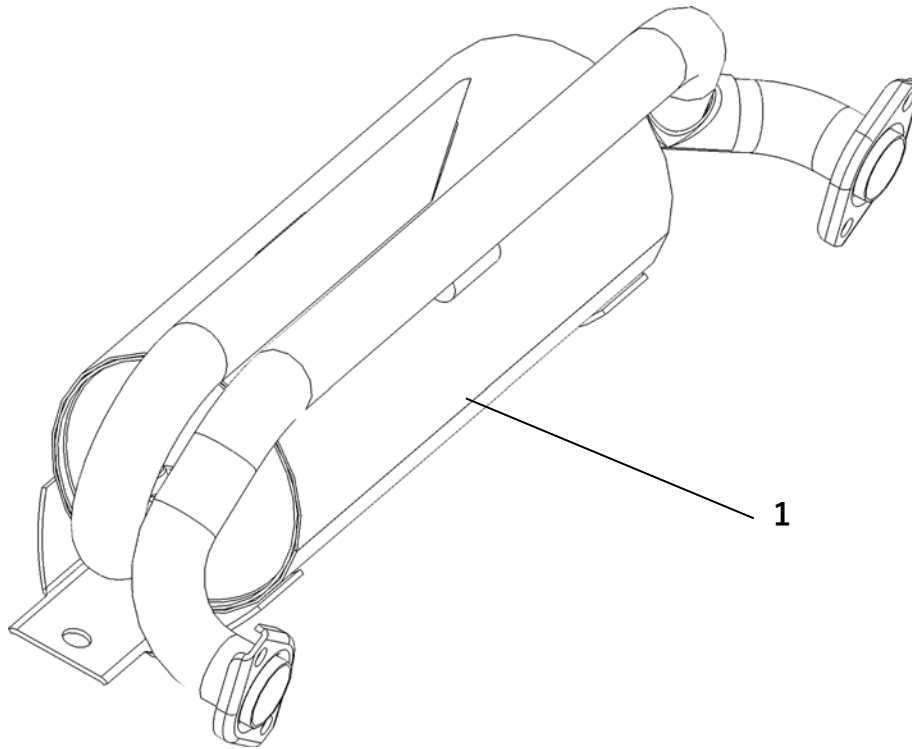


### WIRE HARNESES/ENGINE ELECTRICAL/FUSE BOX (2007-2008)

Item #	Description	Qty	Part Number	Manuf. P/N
1 (Not Shown)	Main Wire Harness	1	E1707101	
Power Relay	Power Relay	1	885014	1043897
Starter Relay	Starter Relay	1	792185	792185
Alternator 60A Fuse	60A Maxi Fuse	1	938198	938198
VSW 5A Fuse	5A Minifuse	1	7380660	914572
ECM 20A Fuse	20A Minifuse	1	7381270	914592
Ignition 15A Fuse	15A Minifuse	1	7381120	230898
EPR 10A Fuse	10A Minifuse	1	914584	914584
Starter 20A Fuse	20A Minifuse	1	7381270	914592
-	Fuse Box Cover (Top)	1	E-6131	
-	Fuse Box Cover (Bottom)	1	E-6132	

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

## EXHAUST SYSTEM (2007-2008)



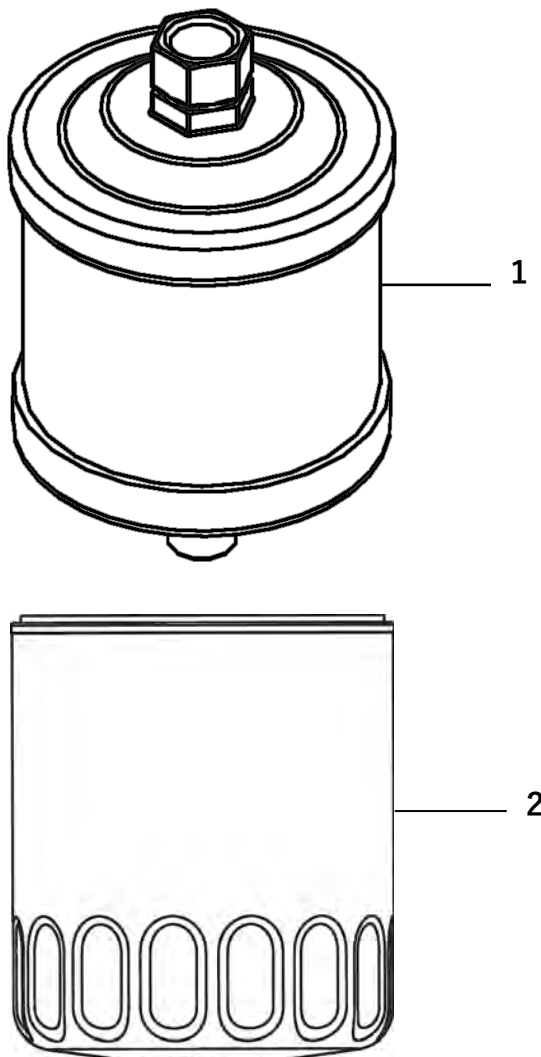
Item #	Description	Qty	Part Number
1	Catalytic Converter	1	C12-50337-001

## 4.3L Generic Lift Trucks

Spectrum Series III



### FILTERS (2007-2008)



Item #	Description	Qty	IMPCO Part Number	GM Part Number
1	Filter, LPG ¼" NPT x ¼" NPT	1	F1-30869-001	
2	Filter, Oil PF47			19210284

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

### SERVICE BLOCK (2007-2008)

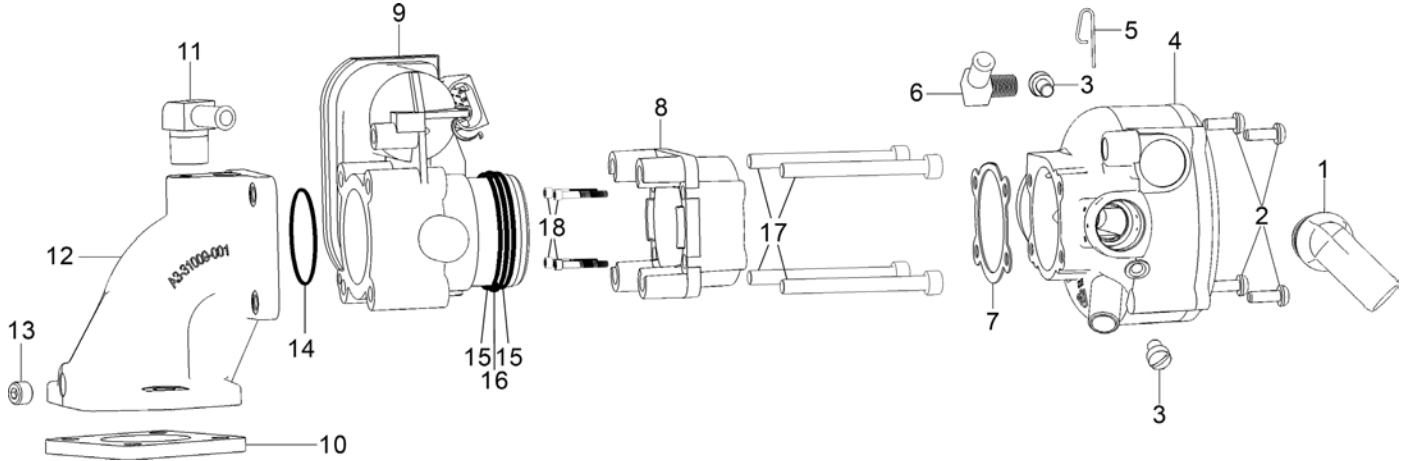


Description	Qty	GM Part Number
2007 Service Block	1	7043321*
2008 Service Block	1	12593055*

\*Requires that the distributor, ignition coil and other minor bolt-on parts be transferred from the original engine

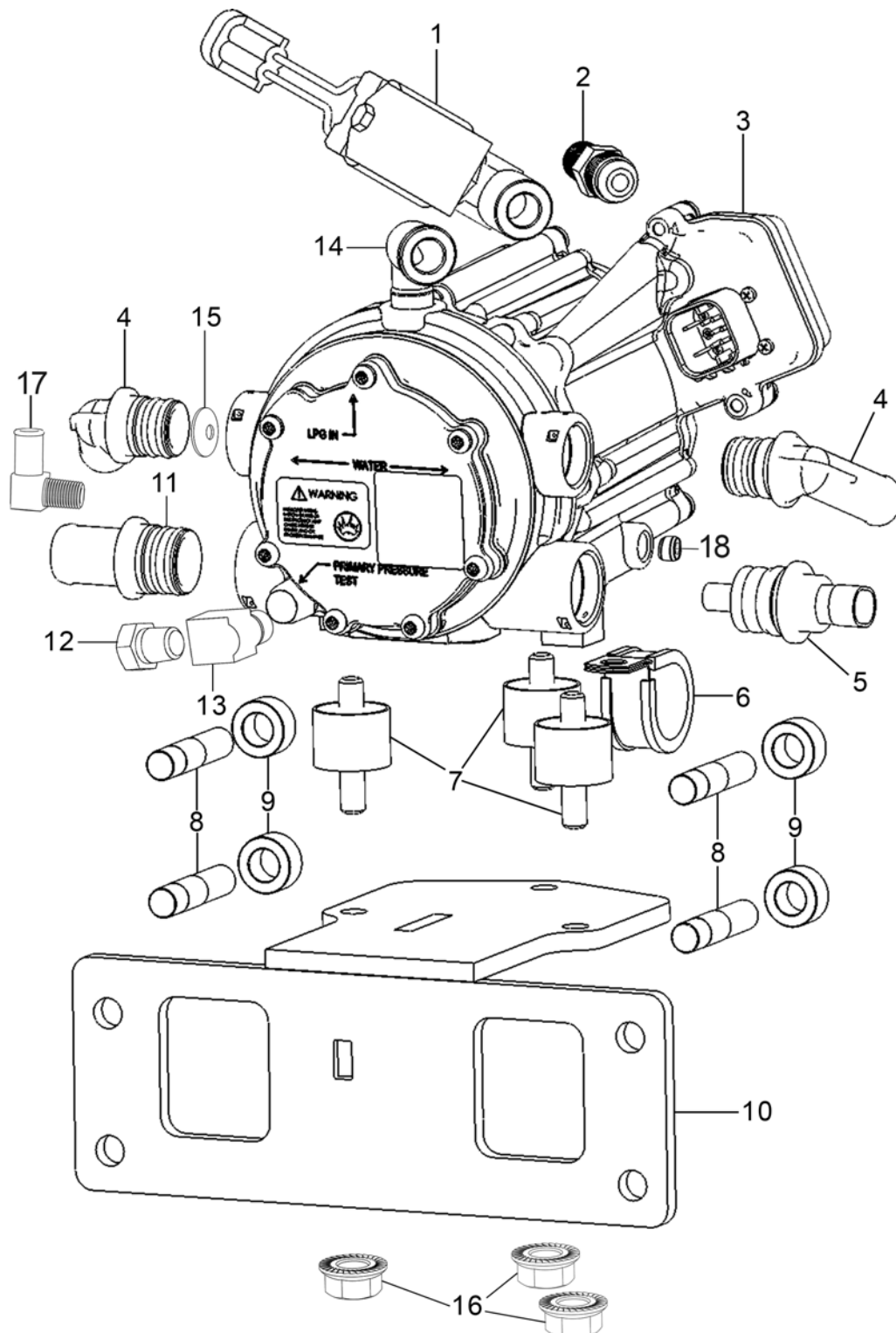
### 3.0L Generic Lift Trucks

#### MIXER AND THROTTLE BODY ASSEMBLY (2007-2008)



Item #	Description	Qty	Part Number
1	Fitting, 70 Degree ¾" OD	1	AF4-31197-001
2	Screw, M5 x 16mm	1	NSS-Tamper Resist
3	Screw, ¼ x 28x 5/16	2	S1-69
4	Mixer Ass'y, Model 100	1	FT100M-30828-52-003
5	Pin, Retaining	1	P1-30559
6	Fitting, 1/8 NPT 3/8 90 Elbow	1	F4-12
7	Gasket, Throttle Mixer	1	G1-11
8	ADAPTER, BOSCH TBI TO 100 MIXER	1	E1449100
9	Bosch Throttle Body	1	E1312100
10	Gasket, Bosch ETB	1	G1-50449-001
11	Fitting, Throttle Body	1	3H-303B
12	Intake Adapter	1	A3-31009-002
13	Plug, 1/8 NPT 3/16 Hex Brass	1	P3-46
14	O-ring Nitrile	1	S3-1524-003
15	Seal, Quad-ring Bosh ETB	2	S3-50447-001
16	Seal, O-ring Bosch ETB	1	S3-50446-001
17	Screw, Hex Sck Cap M6 X 75 Mm	4	S1-30295-0675
18	Screw, #12-24 X 1 1/2" Gr 5 SHCS	4	S1-50448-001

### EPR ASSEMBLY (2007-2008)

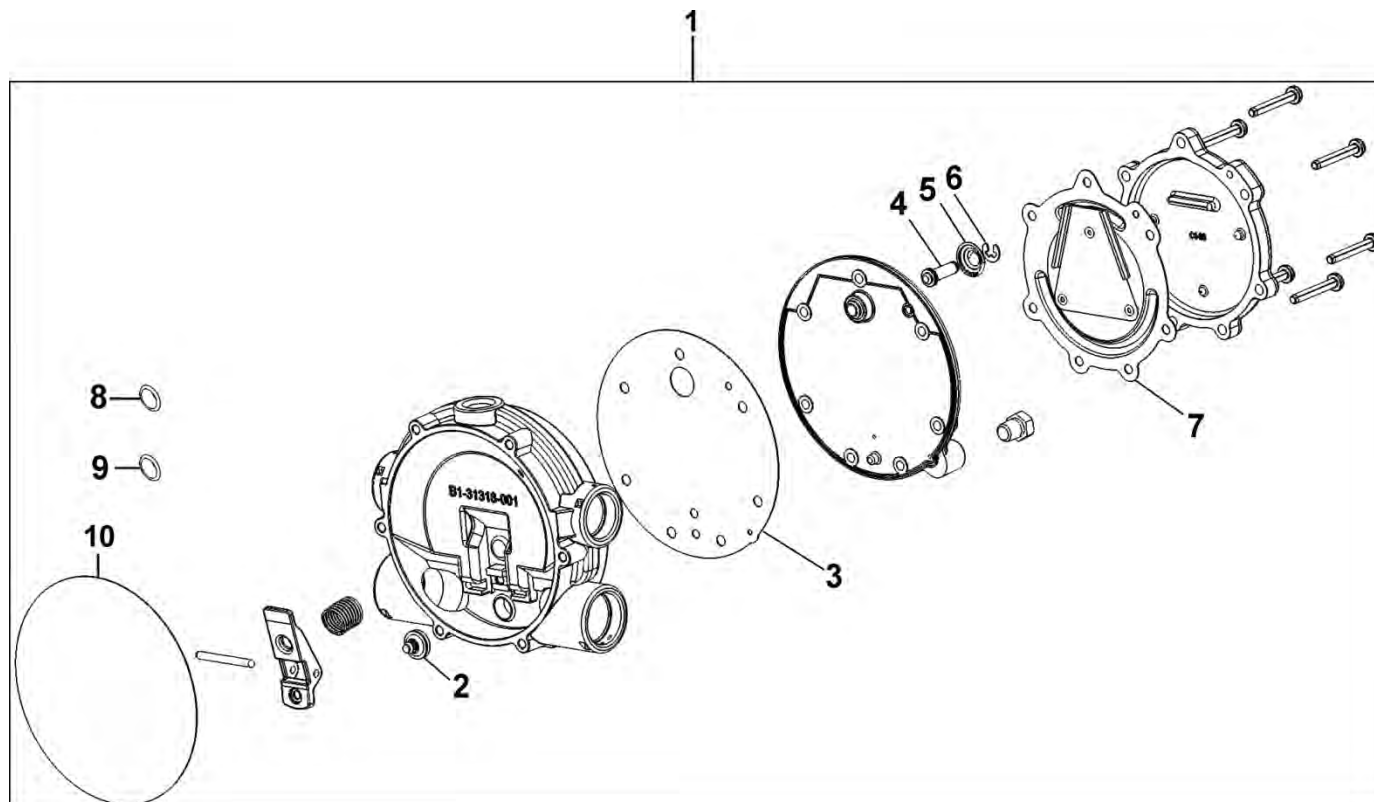


**EPR ASSEMBLY (2007-2008)**

Item #	Description	Qty	Part Number
1	Valve, LPT Shut-Off	1	ET98-30515-001
2	Fitting, ¼ NPT 3/8 Flare Brass	2	F4-14220
3	EPR	1	EPR-50388-001
4	Fitting, 70 degree 5/8" hose	2	AF4-30614
5	Temperature Sensor Assembly	See Sensors Page	
6	Clamp, Shielded	1	C2-30880-016
7	Mount, Vibration	3	R5-50080-002
8	Stud 3/8-16x2"Gr5	4	S3-50596-001
9	Spacer	4	7143810
10	Bracket, EPR Mount	1	NSS
11	Fitting, Straight ¾"	1	AF4-31193-001
12	Plug, 1/8" NPT	1	P3-13
13	Elbow, 1/8NPT Street 90El Br	1	7162170
14	Fitting, ¼" NPT Street 90 Brass	1	F4-16238-1
15	Jet, Coolant Restrictor	1	J1-30872-047
16	Nut, Hex Flange, Serrated M8 X 1.25	1	N1-30876-M08
17	Fitting, 1/8 NPT 3/8 90 Elbow	1	F4-12
18	Plug, 1/8" NPT, Socket Head Brass	1	P3-46

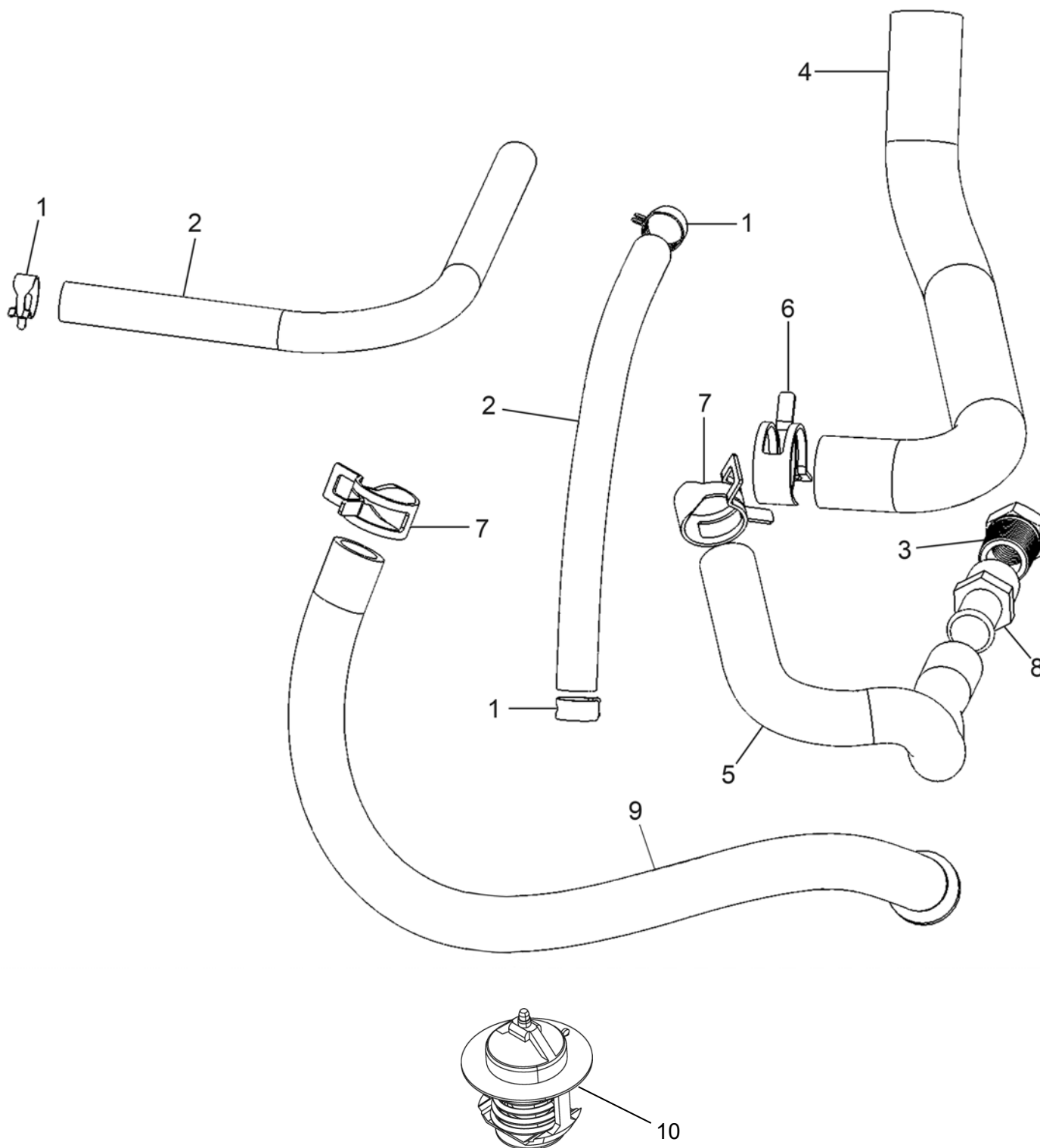


## EPR REGULATOR REPAIR (2007-2008)



Item#	Description	Qty	Part Number
1	Kit, Minor Repair (Includes items 2-10 only)	1	RK-EPR-3
	Kit, Major (Includes All parts shown in box, assembled)	1	RK-EPR-4
2	Seat, Secondary	1	NSS
3	Gasket, Body Secondary	1	NSS
4	Pin, Primary	1	NSS
5	Spring, Primary	1	NSS
6	Clip, Primary	1	NSS
7	Diaphragm, Primary	1	NSS
8	O-ring	4	NSS
9	O-ring	4	NSS
10	Seal, Clamp Plate, EPR	1	NSS

## HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (2007-2008)



## 3.0L Generic Lift Trucks

Spectrum Series III

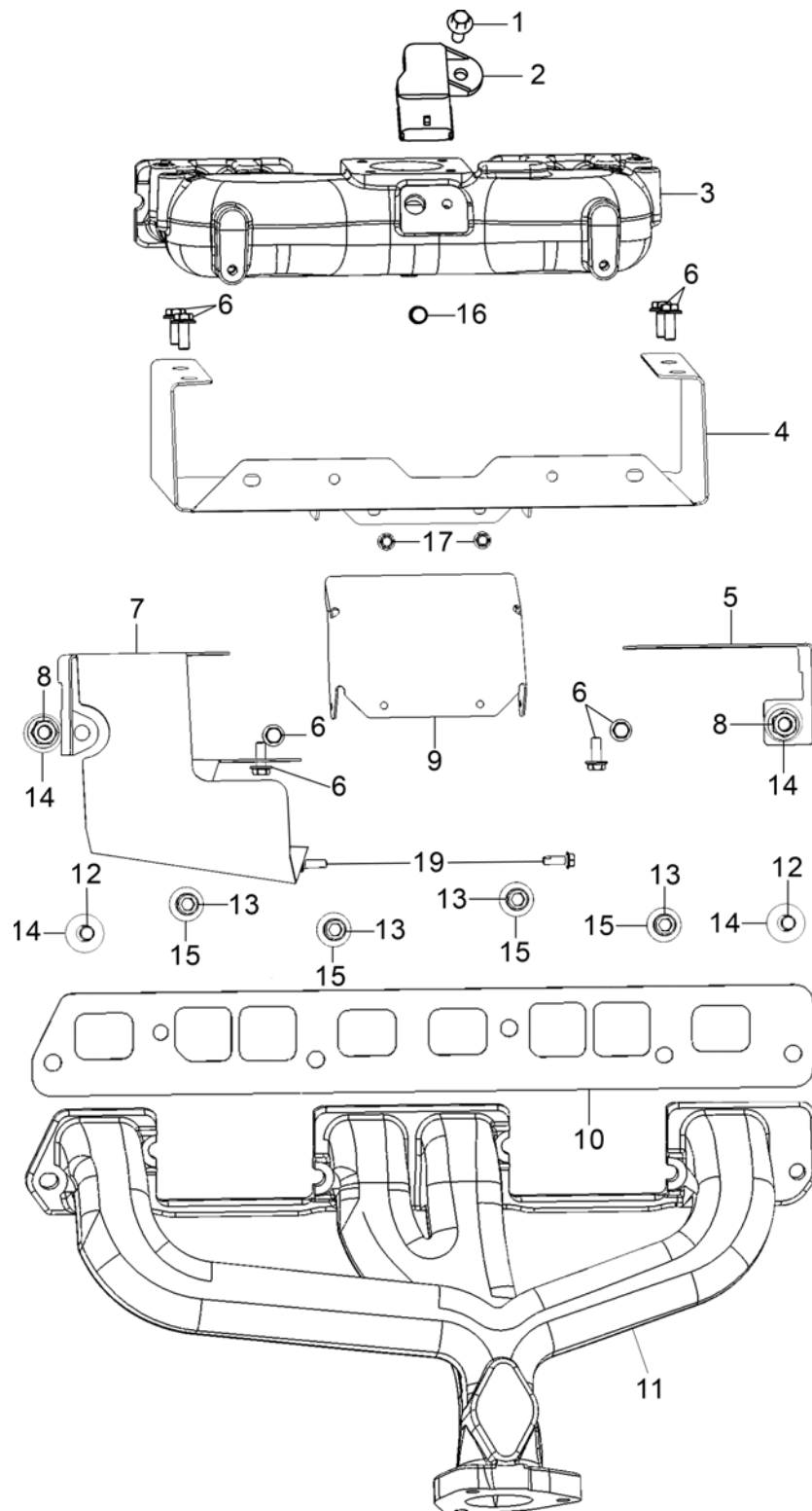


### HOSE ASSEMBLIES COOLANT/VACUUM/FUEL (2007-2008)

Item #	Description	Qty	Part Number	GM Part Number
1	Clamp, Hose, .69 Od, Blk	3	C2-16664-1	
2	Hose, 3/8" Id Fuel/Oil Bulk	2	H1-19231-004	
3	Bush, 1/2-14mx3/8-18f NPT Br	1	7176570-06	
4	Hose, 3/4" Fuel Va, Formed	1	H1-50176-001	
5	Hose, Formed Gate 18770	1	H1-50599-001	
6	Clamp, Hose, 19mm Nominal	1	C2-16664-4	
7	Clamp, Hose, .88 Od, Blk	1	C2-16664-2	
8	Fitting, Barb St 1/2px5/8h Br	1	7171440	
9	Hose, Formed Gate 18770	1	H1-50599-001	
10	Thermostat, 180°	1		10202456

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.

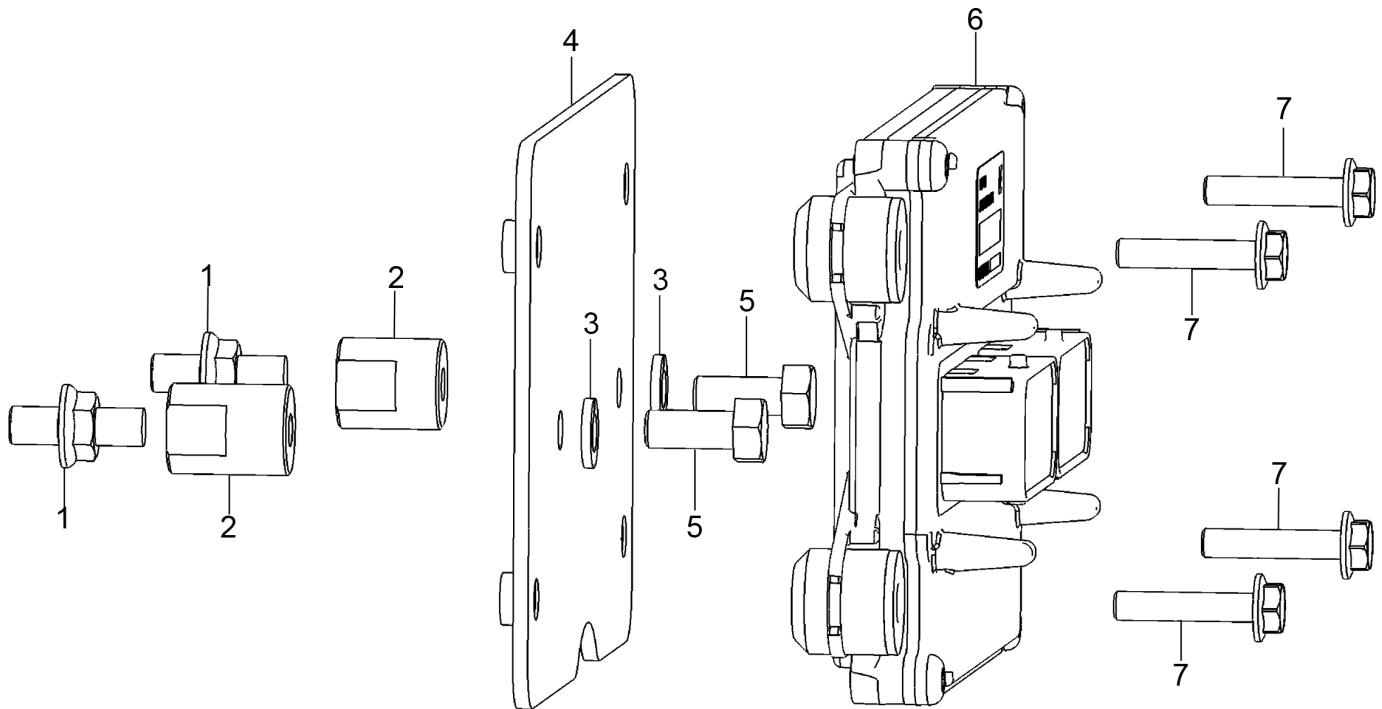
### MANIFOLDS (2007-2008)



### MANIFOLDS (2007-2008)

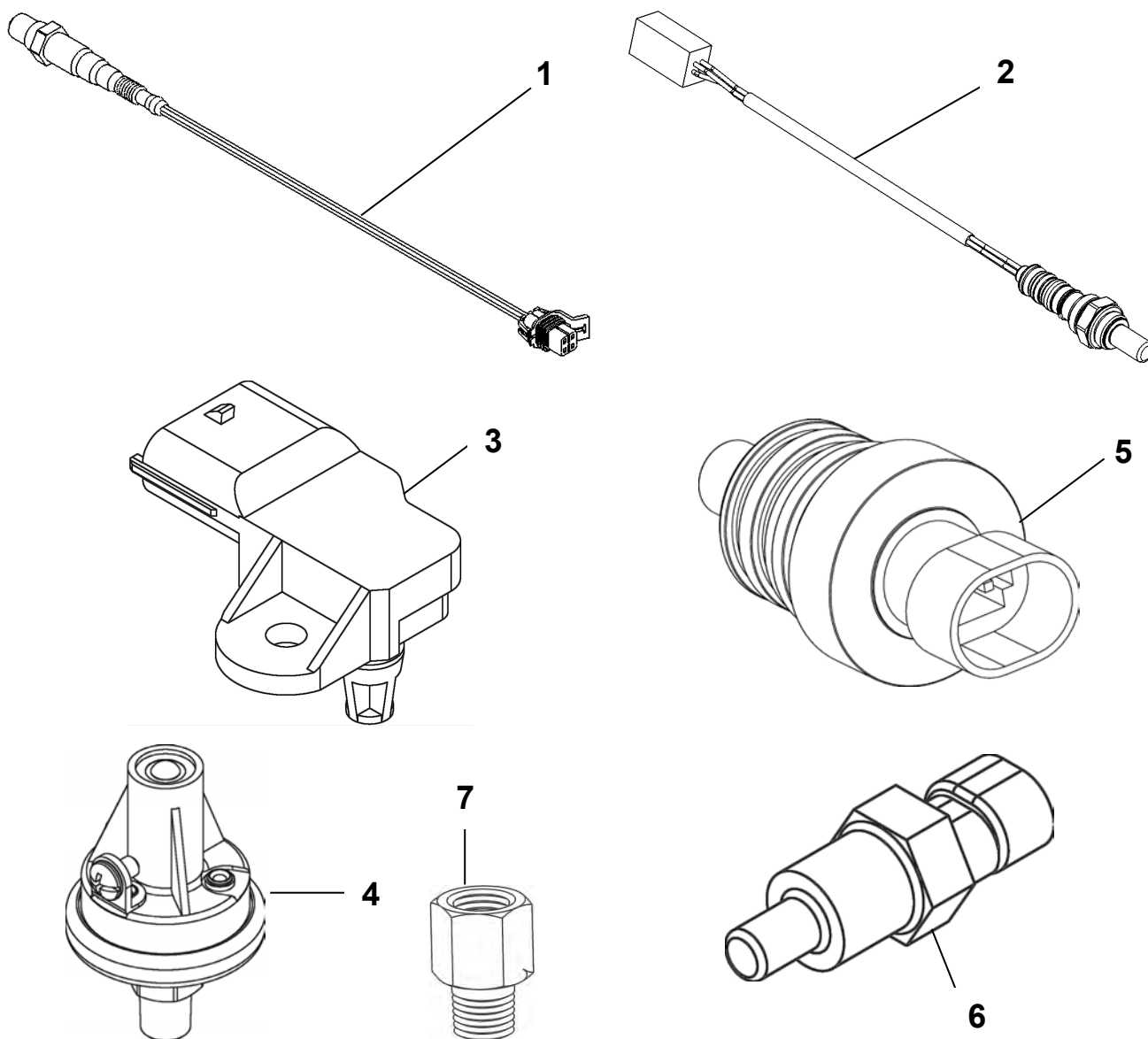
Item #	Description	Qty	Part Number
1	M6 x 1.00 x 15mm Bolt Flange 8.8	1	98227016
2	Bosch TMAP Sensor	1	See Sensor Section
3	Manifold, Intake GM 3.0L RB	1	7152141
4	Shield, Heat GM 3.0L Outer	1	NSS
5	Shield, Heat-Exhaust	1	G4-50067-001
6	Screw, Hex Flange, M6 x 16mm	8	S1-30871-02-0616
7	Shield, Heat Alternator	1	G4-50068-001
8	Nut, Hex Flange, Serrated	2	N1-30876-M10
9	Shield, Heat GM 3.0L Inner	1	NSS
10	Gasket, Int/Exh GM 3.0L	1	7152170
11	Manifold, Exhaust GM .30L	1	7152150
12	Stud, 3/8"-16 x 1 x 5/8" Gr 8	2	71834
13	3/8" – 16 x 1" Bolt Soc Head Gr 8	4	90368100
14	Washer, Flat 3/8" SAE	4	W1-50666-037
15	Washer, Hardened	4	W1-50595-037
16	Plug, 1/8" NPT 3/16" Hex Brass	1	P3-46
17	Screw, Hex FL, Lock M5 x 0.8-48mm	2	S1-50237-21-0548

### ENGINE CONTROL MODULE (2007-2008)



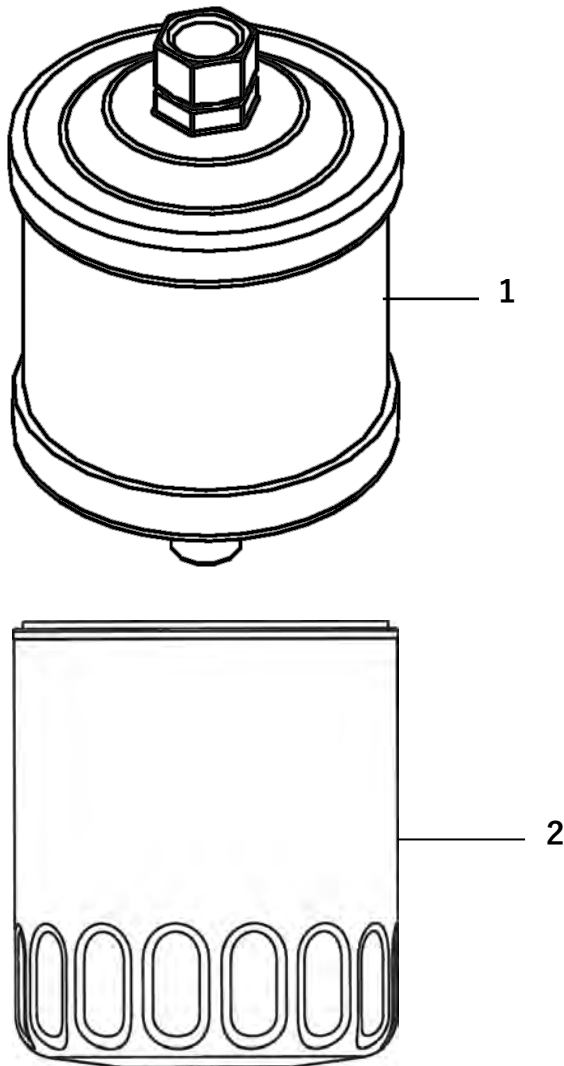
Item #	Description	Qty	Part Number	GM Part Number
1	Stud 5/16-18 x 5/16 24	2		352169
2	Spacer, ECM Mount 1.00	2	S3-50066-001	
3	Washer, Lock, Med 5/16"	2	93200000	
4	Brkt, ECM Mount 3.0L	1	B4-50063-001	
5	5/16-24 x 3/4" Bolt Grade 5	2	90215075	
6	Engine Control Module Blank	1	Inquire for specific application and calibration	
7	Screw, Hex Flange M6 x 1 x 30	4	S1-30871-02-0630	

### SENSORS (2007-2008)



Item #	Description	Qty	Part Number	GM Part Number
1	HEGO 1, Pre-Catalyst	1	7176700	
2	HEGO 2, Post Catalyst	1	S8-50234-001	
3	Sensor, TMAP	1	E1466001	
4	Oil Pressure Switch	1	S10-50352-001	
5	LPG Temp Sensor	1	AS8-31353-001	
6	Coolant Temp Sensor	1		15326386
7	Adapter, Oil Sender	1	7242360	

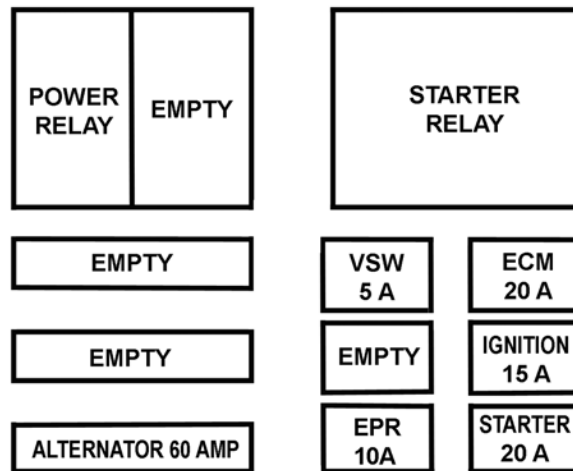
### FUEL FILTERS (2007-2008)



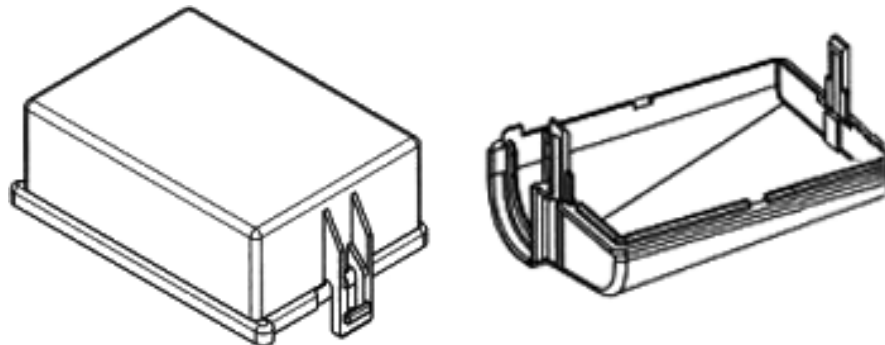
Item #	Description	Qty	Part Number	GM Part Number
1	Fuel Filter, LPG	1	F1-30869-001	
2	Filter, Oil PF-454			25324052



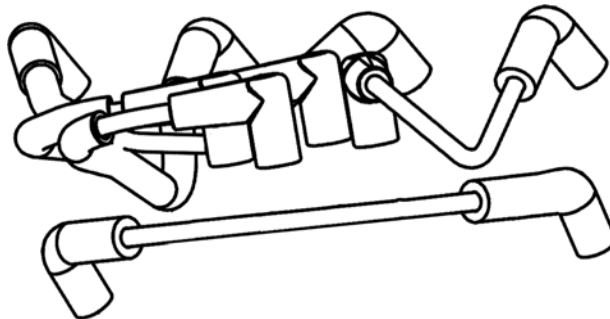
## WIRE HARNESSES/ENGINE ELECTRICAL/FUSE BOX (2007-2008)



## WIRE HARNESSES/ENGINE ELECTRICAL/FUSE BOX



**FUSE BOX COVERS**



**SPARK PLUG WIRES**

## 3.0L Generic Lift Trucks

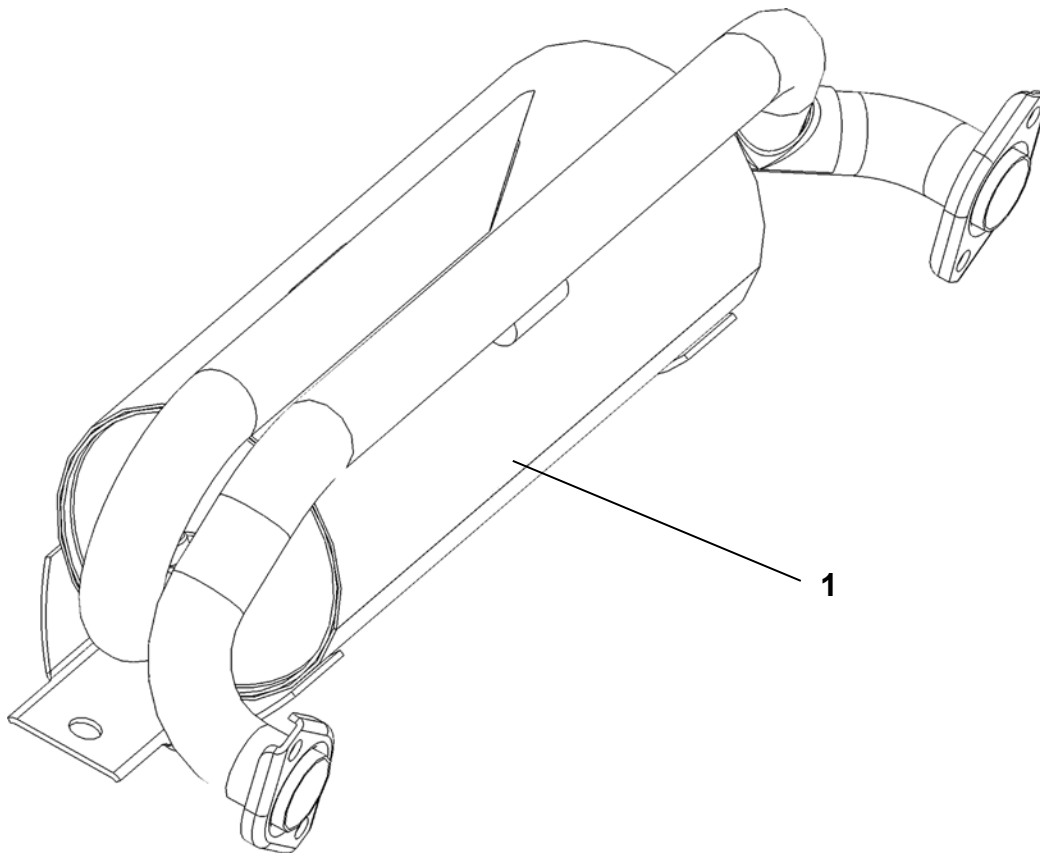
### Spectrum Series III



### WIRE HARNESSSES/ENGINE ELECTRICAL/FUSE BOX (2007-2008)

Item	Description	Qty	Part Number	Manuf. P/N
Wire Harness (Not Shown)	Wire Harness, Main Engine 3.0L LPG	1	E1739100	
Spark Plug Wires	Set of Four Spark Plug Wires, including the Ignition Coil Wire	1	33000596	
Power Relay	Power Relay	1		885014
Starter Relay	Starter Relay	1		792185
Alternator 60A Fuse	60A Maxi Fuse	1	1054112	Littelfuse 299060
VSW 5A Fuse	5A Minifuse	1	7380660	Littelfuse 297005
EPR 10A Fuse	10A Minifuse	1	914584	Littelfuse 297010
ECM 20A Fuse	20A Minifuse	1	7381270	Littelfuse 297020
Ignition15A Fuse	15A Minifuse	1	7381120	Littelfuse 3660990
Starter 20A Fuse	20A Minifuse	1	7381270	Littelfuse 3660827
-	Fuse Box Cover (Top) w/o Label	1	E-6131	
-	Fuse Box Cover (Bottom)	1	E-6132	

## EXHAUST SYSTEM (2007-2008)



Item #	Description	Qty	Part Number
1	Catalytic Converter	1	C12-50307-001
	Catalytic Converter, 4.66" x 6"		C12-50321-001
	Catalytic Converter, 4.66" x 3"		C12-50321-002

# Definitions

## Definitions



**Air Valve Vacuum (AVV):** The vacuum signal taken from below the air valve assembly and above the throttle butterfly valve.

**ADP:** Adaptive Digital Processor.

**Air/Fuel Ratio:** The amount or balance of air and fuel in the air/fuel mixture that enters the engine.

**Analog Voltmeter:** A meter that uses a mechanical needle to point to a value on a scale of numbers. It is usually of the low impedance type and used to measure voltage and resistance.

**Aromatics:** Pertaining to or containing the six-carbon ring characteristic of the benzene series. Found in many petroleum distillates.

**Backfire:** Combustion of the air/fuel mixture in the intake or exhaust manifolds. A backfire can occur if the intake or exhaust valves are open when there is a mistimed ignition spark.

**Benzene:** An aromatic ( $C_6H_6$ ). Sometimes blended with gasoline to improve anti-knock value. Benzene is toxic and suspected of causing cancer.

**Bi-Fueled:** A vehicle equipped to run on two fuels.

**Blow-By:** Gases formed by the combustion of fuel and air, which ordinarily should exert pressure only against the piston crown and first compression ring. When rings do not seal, these gases escape or "blow by" the side of the piston into the crankcase.

**BTU:** British Thermal Unit. A measurement of the amount of heat required to raise the temperature of 1lb. of water 1 degree F.

**Butane:** An odorless, colorless gas,  $C_4H_{10}$  found in Natural Gas and petroleum. One of the five LP gases.

**CAFE:** Corporate Average Fuel Economy.

**CARB:** California Air Resources Board.

**Carbon Monoxide (CO):** A chemical compound of a highly toxic gas that is both odorless and colorless.

**Carburetor:** An apparatus for supplying an internal-combustion engine a mixture of vaporized fuel and air. In this catalog, a "carburetor" includes both a mixer and throttle body.

**Cathode Ray Tube:** A vacuum tube in which cathode rays usually in the form of a slender beam are projected on a fluorescent screen and produce a luminous spot.

**Circuit:** A path of conductors through which electricity flows.

**Closed Loop Operation:** Applies to systems utilizing an oxygen sensor. In this mode of operation, the system uses oxygen sensor information to determine air/fuel ratio. Adjustments are made accordingly and checked by comparing the new oxygen sensor to previous signals. No stored information is used.

**CNG:** Compressed Natural Gas.

**CKP:** Crankshaft Position Sensor

**CMP:** Camshaft Position Sensor

**CNG:** Compressed Natural Gas

**Conductor:** A material, normally metallic, that permits easy passage of electricity.

**Contaminants:** Impurities or foreign material present in fuel.

**Control Module:** One of several informal names for a solid state microcomputer which monitors engine conditions and controls certain engine functions; i.e. air/fuel ratio, injection and ignition time, etc. The formal name and the one used throughout this manual is ECM, or Engine Control Module.

**Converter:** A LPG fuel system component containing varying stages of fuel pressure regulation combined with a vaporizer.

**Cryogen:** A refrigerant used to obtain very low temperatures.

**Current:** The volume or flow of electrons through a conductor. Measured in amperes or amps.

**DBW:** Drive By Wire

**Dedicated Fuel System:** A motor fuel system designed to operate on only one fuel type.

**DG:** Digester Gas

**Diaphragm:** A thin, flexible membrane that separates two chambers. When the pressure in one chamber is lower than in the other chamber, the diaphragm will move toward the side with the low pressure.

**Diaphragm Port:** The external port located at the fuel inlet assembly and connected to the vacuum chamber above the air valve diaphragm.

**DLC:** Data Link Connector.

**DTC:** Diagnostic Trouble Code

**DST:** Diagnostic Scan Tool

Note: Where applicable, any product underlined and in red text is obsolete. Visit page 6 for support.



Definitions



## Definitions



**DVOM:** Digital Volt/ohm Meter. A meter that uses a numerical display in place of a gauge and is usually of the high impedance type.

**ECT:** Engine Coolant Temperature.

**ECM:** Electronic Control Module

**ECOM:** A DLC cable supporting CAN and serial communication with a Spectrum II or III ECM.

**EFI:** Electronic Fuel Injection. A fuel injection system, which uses a microcomputer (ECM) to determine and control the amount of fuel, required by, and injected into, a particular engine.

**EGO:** Exhaust Gas Oxygen, used to describe a sensor. Also known as "HEGO" (Heat Exhaust Gas Oxygen) sensor, "O<sub>2</sub>" or "Oxygen sensor."

**EGR:** Exhaust Gas Recirculation.

**EPA:** Environmental Protection Agency: A regulating agency of the Federal government which, among other duties, establishes and enforces automotive emissions standards.

**Ethanol:** Grain alcohol (C<sub>2</sub>H<sub>5</sub>OH), generally produced by fermenting starch or sugar.

**Evaporative Emissions Controls:** An automotive emission control system designed to reduce hydrocarbon emissions by trapping evaporated fuel vapors from the fuel system.

**Excess Flow Valve:** A check valve that is caused to close by the fuel when the flow exceeds a predetermined rate.

**FTV:** Fuel Trim Valve.

**FFV:** Flexible Fuel Vehicle.

**Firing Line:** The portion of an oscilloscope pattern that represents the total amount of voltage being expended through the secondary circuit.

**FMVSS:** Federal Motor Vehicle Safety Standards.

**FPP:** Foot Pedal Position Sensor

**Fuel Injector:** a spring loaded, electromagnetic valve which delivers fuel into the intake manifold, in response to an electrical input from the control module.

**Fuel Lock:** A solenoid-controlled valve located in the fuel line to stop the flow when the engine stops or the ignition switch is off.

**Gasohol:** 10 percent ethanol, 90 percent gasoline. Often referred to as E-10.

**Gasoline:** A motor vehicle fuel that is a complex blend of hydrocarbons and additives. Typical octane level is 89.

**GCP:** Spectrum III (90-pin) ECM.

**Greenhouse Effect:** A scientific theory suggesting that carbon dioxide from the burning of fossil fuels is causing the atmosphere to trap heat and cause global warming.

**HC:** Hydrocarbon. An organic chemical compound.

**HD 10:** A fuel of not less than 80% liquid volume propane and not more than 10% liquid volume propylene.

**HD 5:** A fuel of not less than 90% liquid volume propane and not more than 5% liquid volume propylene.

**HDV:** Heavy Duty Vehicle.

**Heavy Ends:** A term used to describe the buildup of wax-like impurities that fall out of LPG when vaporized.

**HEGO:** Heated Exhaust Gas Oxygen, used to describe a sensor. Also known as "EGO" (Exhaust Gas Oxygen sensor), "O<sub>2</sub>" or "Oxygen sensor."

**Hg:** Chemical symbol for the element mercury. Used in reference to a measure of vacuum (inches of Hg).

**Histogram:** The graphical version of a table which shows what proportion of values fall into specific categories over a specific period of time.

**Hydrocarbon:** A chemical compound made up of hydrogen and carbon (HC). Gasoline and almost all other fuels are hydrocarbons.

**Hydrostatic Relief Valve:** A pressure relief device installed in the liquid LPG hose on a LPG fuel system.

**IAT:** Intake Air Temperature

**Ideal Mixture:** The air/fuel ratio at which the best compromise of engine performance to exhaust emissions is obtained. Typically 14.7:1.

**Ignition Reserve:** The difference between available voltage and the required voltage.

**ILEV:** Inherently Low Emission Vehicle.

**IMPCO:** Imperial Machine Products Company.

**Impedance:** A form of opposition of AC electrical current flow (resistance) measured in ohms.

**Insulation:** A nonconductive material used to cover wires in electrical circuits to prevent the leakage of electricity and to protect the wire from corrosion.

**Intercept:** An electrical term for a type of splice where the original circuit is interrupted and redirected through another circuit.

**ITK:** IMPCO Test Kit

**Knock:** Sound produced when an engine's air/fuel mixture is ignited by something other than the spark plug, such as a hot spot in the combustion chamber. May be caused by a fuel with an octane rating that is too low and/or incorrect ignition timing. Also called "detonation" or "ping."

**Lambda Sensor:** A feedback device, usually located in the exhaust manifold, which detects the amount of oxygen present in exhaust gases in relation to the surrounding atmosphere. (See HEGO).

**LDV:** Light Duty Vehicle.

**Lean Mixture:** An air to fuel ratio above the stoichiometric ratio; too much air.

**LEV:** Low Emission Vehicle.

**Limp-in or Limp Home:** A mode where the ECM or a component has failed, but the vehicle remains operational although the engine may operate minimally. This term may also describe the drivability characteristics of a failed computer system.

**Liquid Petroleum Gas (LPG):** A fuel commonly known as propane consisting mostly of propane ( $C_3H_8$ ), derived from the liquid components of Natural Gas stripped out before the gas enters the pipeline, and the lightest hydrocarbons produced during petroleum refining. Octane level of LPG is 107.

**LPG:** Liquified Petroleum Gas.

**M85:** A blend of gasoline and methanol consisting of 85% methanol and 15% gasoline.

**Measurements of Pressure:** 1 psi=2.06" Hg (mercury) = 27.72" H<sub>2</sub>O (water column). At sea level atmospheric pressure is 29.92" Hg.

**Methanol:** Known as wood alcohol ( $CH_3OH$ ), a light, volatile, flammable alcohol commonly made from Natural Gas.

**MIL:** Malfunction Indicator Lamp.

**Misfire:** Failure of the air/fuel mixture to ignite during the power stroke.

**Mixer:** Fuel introduction device that does not include a throttle plate.

**MFI:** Multiport Fuel Injection. A fuel injection system that uses one injector per cylinder mounted on the engine to spray fuel near the intake valve area of combustion chamber.

**MSV:** Manual Shut-Off Valve. Refers to the manually operated valve on the LPG tank.

**MTBE:** Methyl Tertiary Butyl Ether. Oxygenate add to gasoline to reduce harmful emissions and to improve the octane rating.

**Multi-fuel System:** A motor fuel system designed to operate on two different fuels, such as LPG and gasoline.

**NG:** Natural Gas (see Natural Gas)

**Natural Gas:** A gas formed naturally from buried organic material, composed of a mixture of hydrocarbons, with methane ( $CH_4$ ) being the dominant component.

**NGV:** Natural Gas Vehicle.

**NOX:** See Oxides of Nitrogen.

**OBD:** On Board Diagnostic

**Octane Rating:** The measurement of the antiknock value of a motor fuel.

**OEM:** Original Equipment Manufacturer, the vehicle manufacturer.

**Open-Loop:** An operational mode during which control module memory information is used to determine air/fuel ratio, injection timing, etc., as opposed to actual oxygen sensor input.

**Orifice:** A port or passage with a calibrated opening designed to control or limit the amount of flow through it.

**Oscilloscope:** An instrument that converts voltage and frequency readings into traces on a cathode ray tube (also see Cathode Ray Tube).

**Oxides of Nitrogen:** Chemical compounds of nitrogen bonded to various amounts of oxygen (NOX). A chief smog forming-agent.

**Oxygen Sensor:** An automotive fuel system that produces a signal in accordance with the oxygen content of the exhaust gas. (See Lambda Sensor).

**Oxygenate:** Oxygenates (such as MTBE, ethanol and methanol) added to gasoline to increase the oxygen content and therefore reduce exhaust emissions.



## Definitions



**Ozone:** A radical oxygen molecule ( $O_3$ ) that is found in the upper atmosphere and filters out ultraviolet radiation from the sun. Ground level ozone is formed by NOX, during the formation of photochemical smog.

**Particulates:** Microscopic pieces of solid or liquid substances such as lead and carbon that are discharged into the atmosphere by internal combustion engines.

**Positive Crankcase Ventilation (PCV):** An automotive emission control system designed to reduce hydrocarbon emissions by routing crankcase fumes into the intake manifold rather than to the atmosphere.

**Power Derate:** A mode of reduced engine power output for the purposes of protecting engine components during a failure or malfunction.

**Pressure Differential:** The differential between atmospheric pressure and intake manifold (referred to as vacuum) pressure.

**Pressure Regulator:** A device to control the pressure of fuel delivered to the fuel injector(s).

**Primary Circuit:** The low-voltage or input side of the ignition coil.

**Propane:** An odorless and colorless gas,  $C_3H_8$ , found in Natural Gas and petroleum.

**psia:** pounds per square inch absolute.

**PTV:** Pressure Trim Valve

**Reactivity:** Refers to the tendency of an HC in the presence of NOX and sunlight to cause a smog-forming reaction. The lighter the HC, the lower reactivity tends to be.

**Regulator:** An assembly used to reduce and control the pressure of a liquid or vapor.

**Resistance:** The opposition to the flow of current in an electrical circuit. Measured in ohms.

**Rest Pressure:** Fuel pressure maintained within the system after engine shutdown.

**Rich Mixture:** An air to fuel ratio below the stoichiometric ratio; too much fuel.

**SAE:** Society of Automotive Engineers.

**Secondary Circuit:** The high-voltage output side of the ignition coil.

**SEFI or SFI:** Sequential Electronic Fuel Injection or Sequential Fuel Injection.

**Sensors:** Devices that provide the control module with engine information as needed to properly control engine function.

**Spark Line:** The portion of an oscilloscope pattern that represents the time during which the air/fuel mixture is being burned in the combustion chamber.

**Splice:** An electrical term for the joining of two or more conductors at a single point.

**Stoichiometric Ratio:** An ideal fuel/air ratio for combustion in which all of the fuel and most of the oxygen will be burned.

**Sulfur Oxides:** Chemical compounds where sulfur is bonded to oxygen produced by the combustion of gasoline or any other fuel that contains sulfur. As sulfur oxides combine with water in the atmosphere to form sulfuric acid.

**System Pressure:** The fuel pressure maintained in the system during normal engine operation.

**Tap:** An electrical term for a type of splice where the original circuit is not interrupted.

**TBI:** Throttle Body Injection. Any of several injection systems that have the fuel injector(s) mounted in a centrally located throttle body.

**Throttle Body:** Controls engine RPM by adjusting the engine manifold vacuum to the mixer. Consists of a housing shaft, throttle liner and butterfly valve.

**TLEV:** Transitional Low Emission Vehicle.

**TMAP:** Combined Air Inlet and Manifold Pressure Sensor.

**Toluene:** A liquid aromatic hydrocarbon  $C_7H_8$ .

**TPS:** Throttle Position Sensor.

**TSB:** Technical Service Bulletin.

**ULEV:** Ultra Low Emission Vehicle.

**USB:** Universal Serial Bus. A plug or interface supplied on most personal computers.

**Vaporizer:** A device that transfers heat to liquid LPG, causing it to vaporize into LPG vapor. Many IMPCO regulators perform this function and are often referred to as converters.

**Vaporization:** A process in which liquid changes states into gas.

**Venturi Air Valve Vacuum (VAVV):** An amplified air valve vacuum signal coming from the venturi area of the mixer, directly exposed to airflow before the addition of vaporized LPG.

## Definitions



**Volt/ohmmeter (VOM):** A combination meter used to measure voltage and resistance in an electrical circuit. Available in both analog and digital types. May also be referred to as AVOM and DVOM.

**Voltage:** The electrical pressure that causes current to flow in a circuit. Measured in volts.

**Voltage Drop:** A lowering of the voltage in a circuit when resistance or electrical load is added.

**VSS:** Vehicle Speed Sensor

**w.c.:** Water Column. A unit of pressure (measured in inches)

**Xylene:**  $C_6H_4(CH_3)_2$ . Any of three toxic, flammable, and oily isomeric aromatic hydrocarbons that are dimethyl homologues of benzene and usually obtained from petroleum or Natural Gas distillates.

**ZEV:** Zero Emission Vehicle.

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