

Delphi Technologies

Fuel Modules

**Dependable Parts You Can Trust.
OE-Engineered Delphi Technologies Fuel Assemblies**



Choose Delphi Technologies for Fuel

When it comes to building fuel modules, Delphi Technologies applies its OE heritage and technological leadership to deliver the highest level of performance and customer satisfaction. Delphi Technologies engineers each fuel module with the same stringent standards we apply to the parts we make for Chrysler, Ford, GM and other OEMs. We carry fuel pumps, modules and hanger/sender assemblies for more than 90% of vehicles in North America.

OE Helps Make the Difference

- ✓ 100+ years of OE heritage
- ✓ Built to withstand today's fuels, including ethanol blends
- ✓ Supplier to global OEMs

What Fuel Module & Hanger/Sender Assemblies Do

- ✓ Designed to deliver an immediate, uninterrupted flow of fuel to the engine's fuel rail and injectors at the specified system pressure, resulting in more efficient operation.
- ✓ Where required, our fuel assemblies include integrated fuel level sensing components for an accurate reading of the fuel level in the tank to fuel gauge and ECM/PCM.
- ✓ Typically, modules include a fuel vapor pressure sensor to detect any leaks in the fuel tank or associated evaporative emissions components.

Why Do Fuel Modules Fail?

- ✓ Original fuel modules and hanger/senders typically operate for seven to 10 years before failure.
- ✓ Premature failures can be caused by extreme hot/cold environments, contaminated fuel or excessively running a vehicle on an empty tank.
- ✓ Running near empty does not keep the fuel pump fully submerged and can cause the pump to overheat.

Superior Performance

- ✓ Increased terminal size and enhanced connectors eliminate excessive electrical resistance, improve heat dissipation and boost current flow capacity.
- ✓ OE fuel vapor pressure sensor confirms to ECM the EVAP emissions system is performing to specifications.
- ✓ Fill limit valve vents fuel tank and shuts off tank fill nozzle.
- ✓ The integrated fuel pressure regulator maintains pressure at fuel rail.
- ✓ High durability gold compound fuel level sensor for improved long-term sensor integrity.
- ✓ Our patented Gen IV turbine pump provides better pumping with less energy use and withstands today's harsh alcohol fuel blends.

Bring the benefits of the Delphi Technologies fuel assembly product line to your shop. Contact your Delphi Technologies sales representative to stock up today. Call our hotline at (1) 877.GO.DELPHI for technical questions.

How to Reduce Fuel Pump Warranty

Identify Part

- Delphi fuel pumps and modules can be identified by the word "DELPHI" on the part.



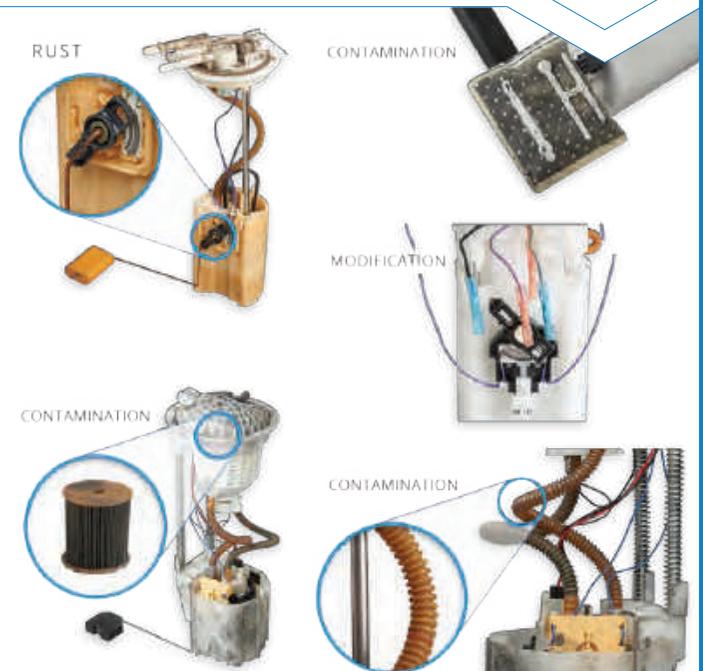
Restock Unused Parts

- Fuel pumps and modules with no evidence of installation are considered new and should be put back on the shelf.



Address Contamination

- To eliminate contamination returns, always clean the tank before installation. Easy-to-follow instructions are included on side 2 of this document.
- Always use a new strainer on a new pump (where applicable), never re-use a strainer.
- Always replace the in-line fuel filter (where applicable).



Please refer to delphiautoparts.com to view the current Delphi Warranty Policy.
Contact the Delphi Tech Line at 1.877.GO.DELPHI if you have questions about product installation or identification.

10 Steps to Properly Clean a Gas Tank.

Clean the fuel tank during every fuel pump replacement. The original pump went into a clean tank, to ensure the same level of performance, the new pump should go into a clean tank too.

1  **DRAIN FUEL TANK INTO AN APPROVED CONTAINER**

2  **CLEAN RUST AND DEBRIS FROM THE TOP OF THE FUEL TANK**

3  **REMOVE FUEL PUMP**

4  **SWIRL GAS TANK. POUR OUT REMAINING GAS AND DEBRIS**

5  **CLEAN THE TANK INTERIOR WITH A LOW-SUDS SOAP AND WATER MIXTURE ***

For your convenience, Delphi sells a Fuel Tank Cleaning Kit (FC01).

6  **SWIRL CLEANING SOLUTION INSIDE TANK**

7  **DRAIN TANK AND DRY WITH COMPRESSED AIR**

8  **WIPE OUT TANK WITH LINT-FREE TOWEL**

9  **VISUALLY INSPECT TANK REPLACE TANK IF DAMAGED**

10  **CONFIRM TANK IS COMPLETELY DRY (MAY TAKE APPROXIMATELY 30 MINUTES)**



Keep it Clean

The process is simple and clears old debris that could damage the new part that you just installed.

Before You Clean (or do any repair), Think Safety First:

- ✓ Wear safety glasses and gloves
- ✓ Store fuel in an approved container
- ✓ Have a fire extinguisher handy
- ✓ Clean any spills immediately
- ✓ Always relieve fuel pressure prior to opening fuel systems
- ✓ Never smoke or work near anything that could cause a spark or ignite fuel
- ✓ Work in well-ventilated area with a constant flow of fresh air
- ✓ Dispose of any product, container and cleaning residues according to all local, state and federal laws and regulations. For disposal of gasoline and any fuel-containing cleaning residues, contact your local municipality for location of nearest appropriate waste disposal facility

Endorsed by the Car Care Council



For a video demonstration, go to youtube.com/delphiautoparts

Delphi Technologies

Steering & Suspension
Turn to us for Steering & Suspension.



OE expertise in every part.

Integral to its ride, handling and safety, a vehicle's steering system must be up to the job. We make sure it is by applying our OE expertise to our aftermarket steering portfolio. That's why all our parts are tested to the extreme, helping to ensure they perform just like the OE.



Built for performance.

- Meets the same standards of performance and precision as the OE.
- Cathaphoretic coating for greater protection against corrosion.

Tested at every turn.

- Tested to withstand temperatures below -40°F and over 248°F, helping to ensure they perform even under the harshest conditions.
- Parts exposed to 720 hours of salt spray for optimum protection against corrosion.
- Our control arms are robot welded and undergo 100% crack detection and ultrasonic flaw detection to ensure that materials match OE specifications.

Exact fit every time.

- Extensive dimensional and material analysis ensures the very best compatibility between the OE and aftermarket part.
- OE specification steering kits include the right parts and hardware for a complete repair solution.

Our Steering & Suspension portfolio.

- Control arms and track control arms
- Sway bar links
- Tie rod ends (inner & outer)
- Tie rod assemblies
- Bushings
- Ball joints
- Bellows kits
- Steering kits
- Pitman & idler arms
- Drag links



For import cars from Audi to Volkswagen, as well as domestic models, turn to Delphi Technologies for steering & suspension. Contact your Delphi sales representative to stock up today. Call our hotline at (1) 877.GO.DELPHI for technical questions.

Delphi Technologies

Ignition Coils

Superior Performance and Efficiency.



Choose Delphi Technologies for Ignition

Help ensure fast starts, consistent engine performance and optimized fuel efficiency with Delphi Technologies ignition coils. We make more than 10 million ignition coils for North America each year, and each one is engineered to OE design specifications for vehicles from Ford, Toyota, Nissan, Lexus, GM, Mazda, Subaru, Acura and more.

OE Helps Make the Difference

- ✓ Delphi Technologies ignition coils are designed—and endurance tested—to resist the common stresses that cause failure.
- ✓ We've used our 100 years of OE ignition system experience to create world-leading magnetic design and modeling capabilities.
- ✓ Efficient coil design that ensures the power in the coil has a streamlined path to the spark plug, reducing occurrence of shorts.
- ✓ Delphi Technologies uses winding process techniques to control the length of wire between adjacent windings. More length results in greater voltage differences, which in turn create more pressure that could break down the insulation and wire coating.
- ✓ Our coils contain 6 weld positions, typically more than other brands.
- ✓ Delphi Technologies backs its ignition coil design with proven materials: High quality wires, as well as high quality wire coating that resists the cracks, pin holes and imperfections that most often lead to failure issues.

Pencil Coils from Delphi Technologies.

Delphi Technologies pencil coils replace traditional multiple packs with one single coil design. Developed to provide better controlled spark and spark timing. Our pencil coils deliver total control with no moving parts and high-RPM capability for performance and reliability customers can trust.

Delphi Technologies pencil ignition coils feature precision and control:

- ✓ A smaller, more compact design that results in fewer materials and tighter coupling to the electromagnetic circuit.
- ✓ A design that delivers energy more efficiently and continuously to enhance engine performance and optimize fuel efficiency.
- ✓ A corona-resistant case, so the coil and integral igniter module are fully encapsulated into one package.
- ✓ More precise spark timing response for increased engine performance.
- ✓ Direct placement on the spark plug that gives the spark a shorter distance to reach the spark plug. Also, the coil placement provides a perfect fit in the plug hole for effective sealing.

Stock the ignition coils you can rely on in your shop. Contact your Delphi Technologies sales representative to stock up today.

Delphi Technologies

MAF Sensors

Some Things Are Better New.



Choose Delphi Technologies for MAF

That's why every mass air flow sensor we make — whether with or without the housing — is built with calibrated all-new components and is never remanufactured. Delphi Technologies MAF sensors are designed and tested to meet or exceed OE requirements. They are engineered for a perfect fit in more than 134 million vehicles on the road today in North America — including Ford, Toyota, Nissan, Volkswagen, Hyundai, BMW, Honda, GM, Mazda, Subaru, Acura and more.

Built with all-new components, never remanufactured

- ✓ All parts are tested and calibrated to OE standards using highly accurate OE equipment.
- ✓ By testing to OE specifications, Delphi Technologies ensures that the sensors provide accurate readings and airflow output, which helps to reduce comebacks.
- ✓ Delphi Technologies MAF sensor designs provide low restriction air measurement for increased horsepower.

What is a MAF sensor?

- ✓ A mass air flow (MAF) sensor, also known as an “air meter,” measures the air coming into the intake system and transmits this information to the ECM.
- ✓ The ECM utilizes the MAF sensor output signal to precisely schedule fuel injection, creating an optimal air-fuel ratio.
- ✓ This results in reduced emissions and improved fuel economy, all while maintaining drivability.

Why do MAF sensors fail?

- ✓ Contamination; as air, dirt and other debris get into the sensor, the parts become contaminated and fail.
- ✓ Drivers often notice sluggish performance, rough idling or even stalling. There may also be more frequent need to refuel.
- ✓ Many remanufactured MAFs are simply cleaned and tested, so all debris or contamination on the sensor may not be completely eliminated. Because of this, the ECM could still receive inaccurate readings and the vehicle may still experience sluggish performance.

Delphi Technologies MAF sensors are sold in two ways:

- ✓ A complete unit including the flow tube.
- ✓ A probe-only design, which provides a greener, more cost effective and often faster option.

Delphi Technologies MAF sensor probe allows technicians to focus on the part that needs replacement.

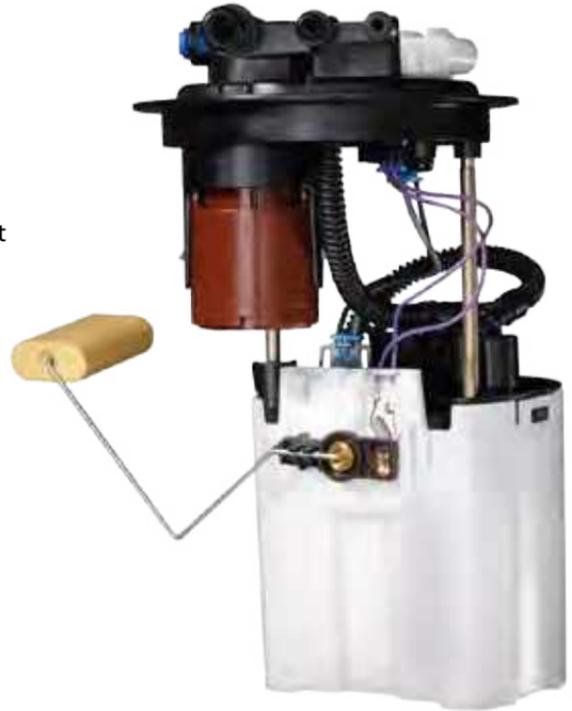
- ✓ The electronics on a sensor probe fail 98% of the time. Replacing the probe is quicker than replacing the plastic housing.

Bring the benefits of Mass Air Flow Sensors from Delphi Technologies to your shop. Contact your Delphi Technologies sales representative to stock up today.

Delphi Technologies

Delphi Technologies brings its OE expertise to you.

Today, our aftermarket technologies cover every aspect of what makes a vehicle go, from fuel systems to batteries to ignition and engine management – whether the vehicle is a hybrid, or powered by gasoline or diesel. Best of all, we understand that aftermarket parts are part of a larger vehicle repair process for shops. Diagnosis. **Parts ordering.** Removal. **Installation.** Customer satisfaction. Because of this we offer the **tools, training** and **technical support** for **efficient, accurate and affordable repair.**



Delphi Technologies

Fuel Pumps

- Engineered with the same stringent standards applied to the parts we make for the top global OEMs
- Durability tested up to 150,000 miles and in more than 20% ethanol for superior reliability
- Backed with a lifetime warranty



Steering & Suspension

- Engineered to perform to OE standards
- A leading range of global coverage
- Intricate knowledge of steering and suspension components



MAF Sensors

- First OE Manufacturer to create an all-new, all-makes replacement option
- Innovative, multiple sensing elements
- Calibrated to OE specifications to help reduce comebacks



A/C Compressors

- Lightweight, high-efficiency design
- Meets OE quality standards
- Cover more than 3,400 applications; 1989 to present



Ignition Coils

- OE-engineered for efficiency and a streamlined path to spark plug
- Specially designed to reduce shorts inside the ignition coil
- Smart manufacturing controls wire lengths, keeps voltage the same



Diesel

- Partner to 25 OEMs, more than 60 years of diesel expertise
- High performance to meet today's tough emissions standards
- Built to OE specifications for an exact fit and high quality



MaxStart Batteries

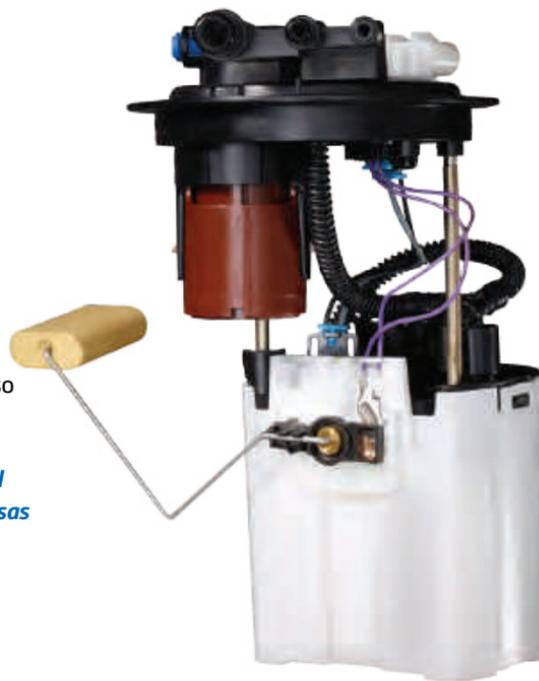
- More battery power for today's demanding car electronics
- High capacity for emergency power
- Backed by free replacement warranty



Delphi Technologies

Delphi Technologies pone su tecnología OE al servicio de usted.

Actualmente, nuestras tecnologías de accesorios cubren cada aspecto de lo que hace funcionar a un vehículo, desde sistemas de combustible, baterías hasta encendido y administración del motor – independientemente de que el vehículo sea híbrido, o accionado a gasolina o diesel. Pero lo mejor de todo es que entendemos que los accesorios forman parte de un largo proceso de reparación de vehículos para los talleres. Diagnóstico. **Piezas ordenadas.** Desmontaje. **Instalación.** Satisfacción del cliente. **Es por esto que ofrecemos las herramientas, la capacitación y el soporte técnico para que las reparaciones sean eficientes, precisas y asequibles.**



Delphi Technologies

Bombas de combustible

- Diseñadas con las mismas normas estrictas que se aplican en las piezas que fabricamos para los principales OEM alrededor del mundo
- Durabilidad comprobada hasta de 150,000 millas y en más del 20% de etanol para brindar la máxima confiabilidad
- Con el respaldo de una garantía de por vida



Dirección y suspensión

- Diseñada para un rendimiento que cumpla con las normas de OE
- Líderes en cobertura global
- Conocimiento detallado de los componentes de la dirección y la suspensión



Sensores MAF

- Primer fabricante de OE en crear una totalmente nueva opción de reemplazos para todas las marcas
- Innovadores elementos de detección múltiple
- Calibrados conforme a las especificaciones de OE para ayudar a reducir retornos



Compresores de A/C

- Diseño ligero de la alta eficiencia
- Cumple con las normas de calidad de OE
- Cubre más de 3,400 aplicaciones; desde 1989 hasta la fecha



Bobinas de encendido

- Diseño conforme con OE para brindar eficiencia y una ruta fluida hacia la bujía
- Diseño especial para reducir cortocircuitos internos en la bobina de encendido
- La fabricación inteligente de tramos de cables de control, mantienen uniforme el voltaje



Diesel

- Socio de 25 OEMs, más de 60 años de experiencia en materia de diesel
- Alto rendimiento para cumplir con las normas de emisiones más rigurosas
- Construido conforme a las especificaciones de OE para ofrecer un ajuste exacto y alta calidad



Baterías MaxStart

- Más potencia para cumplir con las exigencias de los sistemas electrónicos automotrices actuales
- Alta capacidad para potencia de emergencia
- Respaldo de garantía de reemplazo gratuito

