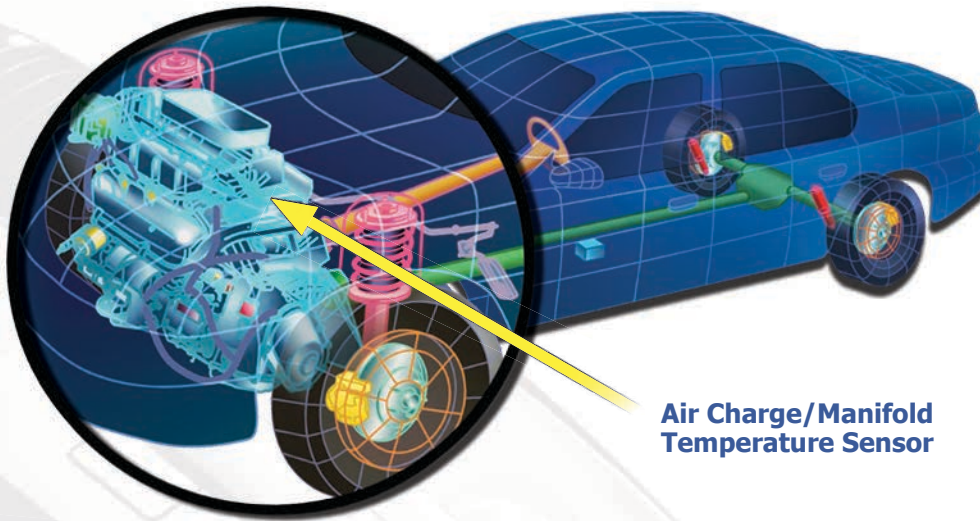


« JUST THE FACTS »

Air Charge/Manifold Temperature Sensors



Air Charge/Manifold Temperature Sensor

What does an Air Charge/Manifold Temperature Sensor do?

The Air Charge/Manifold Temperature sensor is used by the computer to measure air density for fuel mixture control. The computer uses this information to trim the air/fuel ratio according to the air density.

Where are the Air Charge/Manifold Temperature Sensors located?

They are located either in the intake air tubing or intake manifold and may be incorporated into the MAF sensor.

Will a malfunctioning Air Charge/Manifold Temperature Sensor illuminate the check engine light or affect vehicle operation?

Yes, a failing sensor can illuminate the MIL, and may cause the engine to run rich or lean as a result of a failed sensor and may idle poorly especially when cold.

What are the common causes of failure?

Typically these sensors fail due to exposure to the under hood heat from engine operation. Collecting debris on the sensor element may also cause it to operate improperly.

How to determine if these sensors are malfunctioning?

A DTC will be set if an abnormal reading occurs, P0112 low input or P0113 for a high input. The air charge/manifold sensor temperature reading should closely match the engine coolant temperature reading on a scan tool if the engine has not been run for over an hour. The sensor circuit can be checked for proper voltage using a voltmeter.

What makes Standard® and Intermotor® Air Charge/Manifold Temperature Sensors the best?

- As basic manufacturers, Standard® and Intermotor® have complete control of the manufacturing process from componentry to finished product
- Temperature sensor design specifies tight tolerance thermistor response values to assure accuracy of the temperature measurement and proper part operation
- All Air Charge/Manifold Temperature sensors are 100% factory tested to ensure trouble-free performance



Chrysler
AX49



Ford
AX25



GM
TX3



Honda
AX39



Nissan
AX50



Toyota
AX33

« JUST THE FACTS »

Vehicle Warning Lights

Vehicle warning or indicator lights are not new but what these lamps are telling us has changed along with vehicle technology. The following list is by no means comprehensive, and the indicator images are not necessarily universal (automakers do differ so the owner's manual should always be consulted), but these should provide a fair cross section as to what may appear on a vehicle's dash.



Oil Pressure Warning: If this light stays lit it indicates loss of oil pressure. Immediately check oil level and pressure.



Coolant Temp Warning: Indicates temperature has exceeded normal limits. Check coolant level, fan operation, radiator cap, coolant leaks.



Battery/Charging Alert: Indicates voltage level is below normal level and the vehicle's charging system is not functioning properly. Check battery terminals, alternator belt, and battery condition.



Check Engine or Malfunction Indicator Light (MIL): Indicates the engine computer has set a Diagnostic Trouble Code (DTC). Usually requires diagnosis with a professional scan tool.



Reduced Power Warning: Indicates Engine Computer has limited engine power output. The ECM has many levels of reduced power depending on what component has failed in its control system. Usually requires diagnosis with a professional scan tool.



Transmission Temperature: Transmission is operating at higher than optimum temperature as transmission fluid is hotter than normal. Check transmission fluid level and engine coolant level.



Overdrive Light: This symbol indicates that the vehicle's overdrive system has been manually turned off. Typically the overdrive system is controlled by an on/off switch.



Fog Lamp: Indicates that the vehicle's front fog lamps are illuminated.



ABS Light: Indicates that the Anti-lock Brake computer has set a code and needs professional diagnosis.



TPMS (Tire Pressure Monitoring System): Indicates the tire pressure monitoring system has found a tire with low air pressure or there may be a sensor malfunction. Check tire pressure. Some vehicles will allow manual reset of TPMS warning light and others will require professional diagnosis. Refer to owner's manual.



Airbag Fault: If this light stays illuminated after starting it indicates that the vehicle has found a fault in the airbag system and the computer has set a code. Professional repair of the supplemental restraint system is highly recommended.



Service Vehicle Soon: Typically indicates a lighting or other electrical problem that is controlled by the BCM (body control module). Check all lights, head lights, turn signals, brake lights, and hazard lights. This symbol may also be used to warn driver of a traction control problem, or a communication problem between modules.



Door Ajar: Indicates that a door (including hood and trunk) is not closed. Open and close all doors, including hood and trunk. If vehicle is left in this condition overnight it can drain the battery.



Washer Fluid Reminder: Indicates washer fluid is low. Fill washer fluid reservoir. The cap has a symbol that looks like a windshield. Some vehicles have separate reservoirs for front and rear window washers.



Brake System: Indicates one of three possible conditions: parking brake is on; problem with the braking system/brake fluid is low, or ABS problem. Check brake fluid and make sure the parking brake is fully released. If the problem is in the ABS system, it may need a professional diagnosis.



Oil Change Reminder: Indicates that oil life has expired. This is monitored by the ECM; the interval can be mileage or a combination of readings taken by the ECM. The reset procedure is listed in the owner's manual. Some vehicles require the use of special tools to reset the light.



Traction Control or ESP: Illuminates when the vehicle's traction control/anti-skid or electronic stability system is in use. Usually an indicator that conditions are slippery.



Security Alert: If the symbol lights momentarily it may mean that the ignition switch is locked and will need the proper transponder-equipped key to re-start. If the symbol is visible when the vehicle is on, then it typically indicates a malfunction in the security system.



Gas Cap: The check gas cap light indicates that the gas cap is not tightened properly. If not addressed, quite often the Check Engine Light will also illuminate.



Lamp Out: Indicates that there is an exterior light on the vehicle that is not functioning properly.



ESP Fault: Indicates that there is a problem with the vehicle's traction control/anti-skid or electronic stability system.



Cruise Control: Indicates that cruise control is set during driving.



Glow Plug (Diesel): On diesel vehicles this light indicates that the engine's glow plugs are warming up and the engine should not be started until this light goes out.



DPF Light (Diesel): The diesel exhaust particulate filter has failed its test and needs to be serviced.



DEF Light (Diesel): The diesel exhaust fluid reservoir is low on fluid.



THE IMPORT LEADER BY DESIGN



Intermotor® is the Import Leader in Coverage and Quality with a Commitment to Excellence Designed into Every Product Detail

INTERMOTOR® is a complete engine management import line recognized as the import leader in coverage and quality, with a commitment to exact-match fit, form, and function. What might not be immediately apparent is the design, engineering, manufacturing expertise and QC testing that goes into every Intermotor® part. Our attention to the extra details is at the heart of Intermotor® excellence and is what separates Intermotor® from the rest.

The Intermotor® line now numbers more than 16,000+ parts and growing. Intermotor® is your complete engine management import line with a concentration on high-technology categories such as computerized engine controls, fuel injection, and emission controls; with coverage for virtually every vehicle with an import nameplate. Delivering premium quality import parts for decades has earned Intermotor® the reputation as the reliable brand for genuine import parts. And with manufacturing locations around the world, Intermotor® truly is a global leader in import parts. That's why no other import brand can match Intermotor® and why Intermotor® is

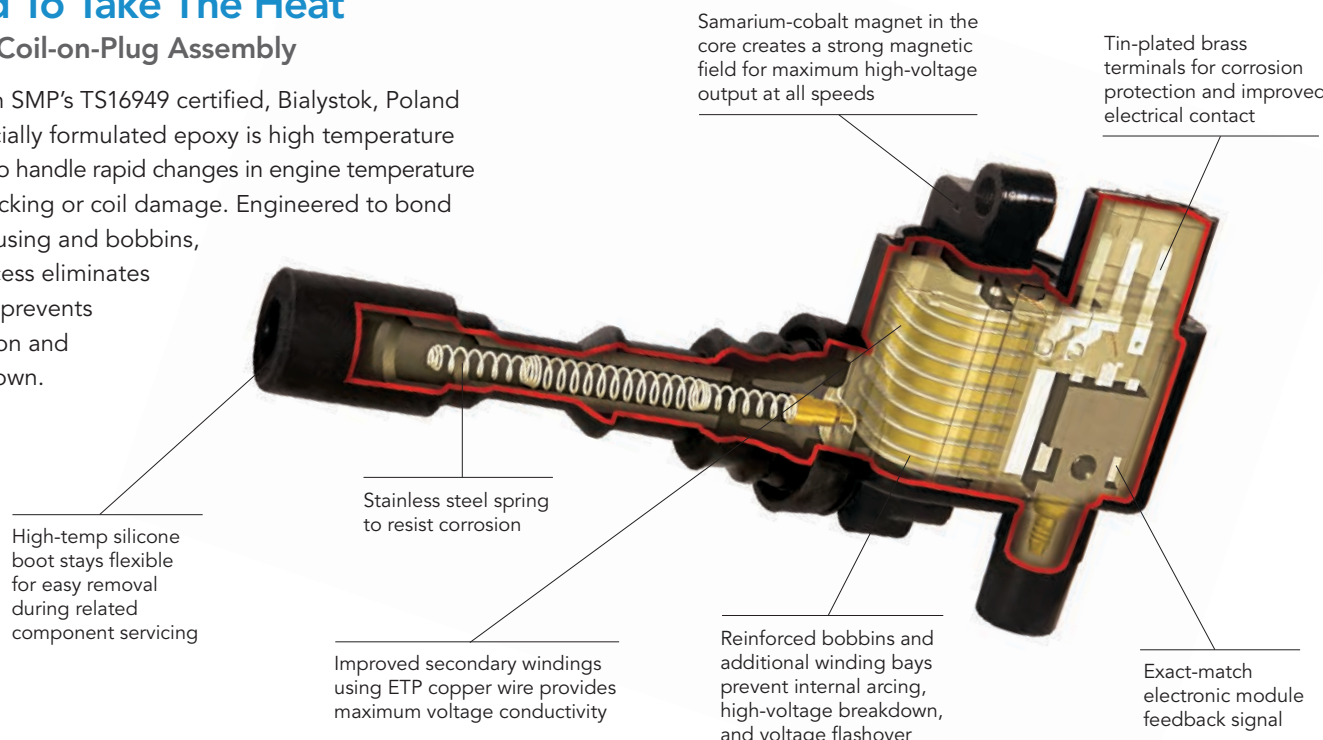
THE IMPORT LEADER BY DESIGN.



Designed To Take The Heat

Intermotor® Coil-on-Plug Assembly

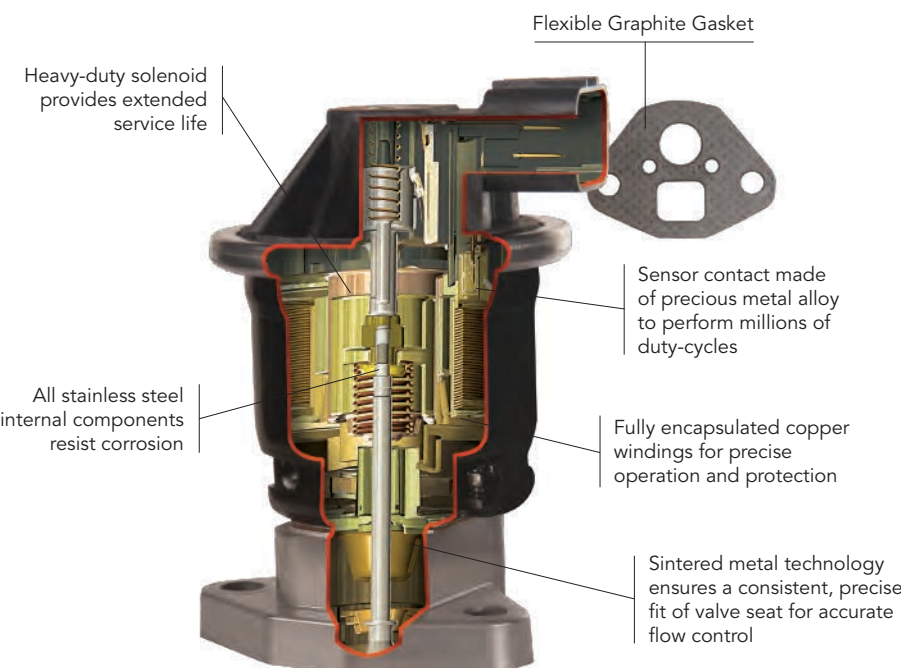
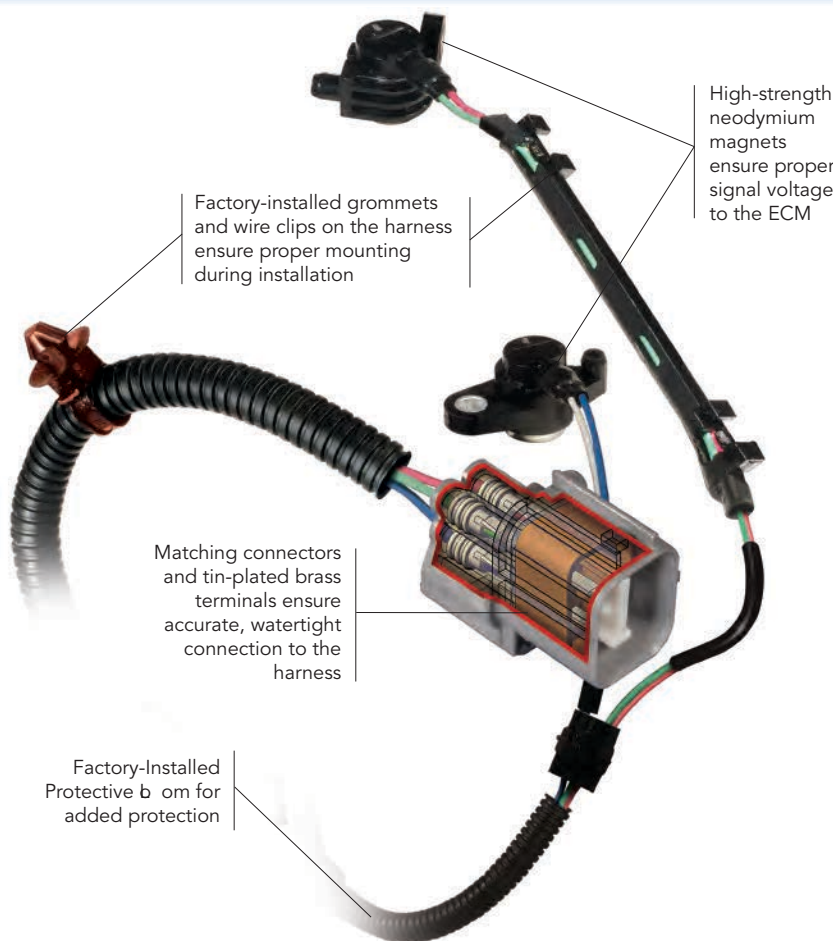
Manufactured in SMP's TS16949 certified, Bialystok, Poland facility, our specially formulated epoxy is high temperature shock-resistant to handle rapid changes in engine temperature and prevent cracking or coil damage. Engineered to bond with the coil housing and bobbins, our unique process eliminates air pockets and prevents moisture intrusion and thermal breakdown.



Designed For Perfect Timing

Intermotor® Crankshaft Position Sensor

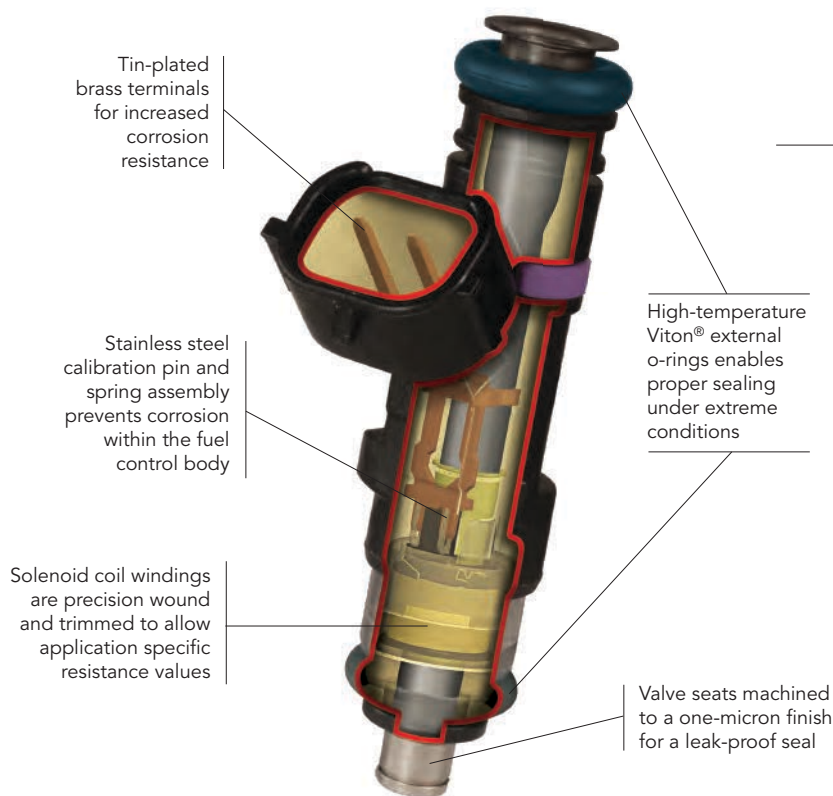
At Intermotor® we design the details that deliver superior quality and performance. Manufactured in our TS16949 certified, SMP® Reynosa, Mexico facility, our Crankshaft Position Sensors feature matching connectors and tin-plated brass terminals to ensure an accurate, watertight connection to the wiring harness. With 100% end of line testing to ensure proper timing, pulse width and signal amplitude.



Designed To Go The Distance

Intermotor® EGR Valve

At Intermotor®, every part we design features thoughtful details that elevate it above the competition. Our EGR valve sensor contacts are made with a precious metal alloy that withstands millions of duty-cycles. Manufactured and 100% factory tested for proper flow, solenoid resistance, response time and leakage in our TS16949 certified, Independence, KS facility.



Designed For Special Delivery

Intermotor® Fuel Injector

Our fuel injectors are flow-matched to each specific application, with advanced laser-drilled metering holes that deliver precise flow and spray patterns for proper injector performance under all conditions. Manufactured in our TS16949 certified, Greenville, SC facility and 100% tested for coil resistance, injector leakage, static and dynamic flow.

Intermotor® Genuine Import Parts: Quality in the Details

Designed To Make It Easy

Intermotor® Ignition Wire Set

At Intermotor® we achieve excellence by pushing for the "plus" – the extra details that set our products above the rest. Intermotor® Import Ignition Wire Sets feature original equipment fit, form, and function plus all the extras you'd expect from an industry leader, including factory-installed clips, trays, loom and numbered leads*. Intermotor® wire conductors have precision-matched resistance values to ensure maximum voltage delivery and spark duration. Every set is designed, built and tested to meet or exceed the tough international TS16949 quality standards.

OE matched spark plug boots and distributor boots provide correct fit, are resistant to fuel and oil contamination and offer a tight moisture proof seal

Numbered leads for easy installation

Factory-installed Anchor Clips*

Patented High-Gloss Clear Coat

OE-matching factory hard loom pre-installed on wire sets to properly complete installation

* Factory installed upgrades are specific to vehicle make and model. Composite image for illustration purposes only.



When required, clocking distributor terminals rotate to proper clock position. This eliminates crossed wire issues and provides a clean installation.

Special Toyota mounting clip* with ring insert. Difficult to get almost anywhere... even at the dealer.
Intermotor® has it!



Special Honda mounting bracket* that slides into OE frame and engine mounted brackets.
Intermotor® has it!

OE-matching factory hard loom pre-installed on our wire sets. Hard loom is required on some applications to properly complete installation. Reusing the old loom is nearly impossible; so wherever possible, Intermotor® does it for you... saving installation time for an easier, professional, and attractive installation.



Numbered cylinder leads* are a big deal, particularly for import specialists. Most wire sets installed on new cars are numbered. Besides making installation easier, technicians and motorists alike appreciate the OE look.
Intermotor® has it!

Intermotor® maintains the strictest adherence to OE-specs and conductors – matching ohms of resistance per foot for peak performance and a genuine import match.

Intermotor®
Genuine Import Parts



THE **IMPORT** LEADER BY DESIGN

And With More Than 16,000 Genuine Intermotor® Parts, Intermotor® Covers the Import World. Completely

2006 Toyota Camry

Below is a **partial** list of Genuine Intermotor® parts for a 2006 Toyota Camry



A/C Control Relay	Door Jamb Switch	PCV Valve
ABS Relay	Fuel Pump Relay	Power Door Lock Actuator
ABS Speed Sensor	Fuel Vapor / Vent Pressure Sensor	Spark Plug Wire Set
Airbag Clock Spring	Hazard Flasher	Taillight Relay
Airbag Sensor	Headlight Dimmer Switch	Throttle Position Sensor
Ambient Air Temperature Sensor	Headlight Switch	TPMS Sensor
Back-Up Light Switch	Heated Mirror Relay	TPMS Sensor Service Kit
Battery Cable	Idle Air Control Valve	Transmission Output Sensor
Blower Motor Relay	Ignition Coil	Vehicle Speed Sensor
Blower Motor Resistor	Ignition Starter Switch	Windshield Wiper Switch
Camshaft Sensor	Knock Sensor	and more
Coolant Temperature Sensor	MAF Sensor	
Crankshaft Sensor	MAP Sensor	
	Parking Brake Switch	

2007 Volvo S40

Below is a **partial** list of Genuine Intermotor® parts for a 2007 Volvo S40



A/C Ambient Air Temperature Sensor	Fog Lamp Relay	Power Window Relay
A/C Control Relay	Fuel Injector	Starter Relay
ABS Speed Sensor	Fuel Pressure Sensor	Starter Solenoid
Air Pump Relay	Headlight Relay	Stoplight Switch
Camshaft Sensor	Headlight Switch	TPMS Sensor
Coil-on-Plug Boot	Horn Relay	TPMS Sensor Service Kit
Coolant Fan Relay	Ignition Coil	TPMS Valve
Coolant Temperature Sensor	Ignition Starter Switch	Turbocharger Boost Sensor
Crankshaft Sensor	Knock Sensor	Wiper Relay
Fog Lamp Connector	MAP Sensor	and more
	PCV Valve	

2010 Hyundai Elantra

Below is a **partial** list of Genuine Intermotor® parts for a 2010 Hyundai Elantra

A/C Ambient Air Temperature Sensor
A/C Condenser Fan Motor Relay
A/C Control Relay
ABS Speed Sensor
Airbag Sensor
Ambient Air Temperature Sensor
Blower Motor Resistor
Camshaft Sensor
Coolant Temperature Sensor
Crankshaft Sensor
Fuel Injector
Fuel Pressure Regulator

Fuel Pump Relay
Hazard Flasher
Headlight Dimmer Switch
Idle Air Control Valve
Ignition Coil
Ignition Starter Switch
Knock Sensor
MAF Sensor
MAP Sensor
Oil Pressure Light Switch
PCV Valve
Power Window Switch
Spark Plug Wire Set
Starter Relay

Stoplight Switch
Tire Pressure Monitoring System Valve
Throttle Position Sensor
TPMS Sensor
TPMS Sensor Service Kit
Transmission Input Sensor
Transmission Output Sensor
Turn Signal Switch
Vehicle Speed Sensor
Windshield Wiper Switch
and more



2007 Volkswagen Jetta

Below is a **partial** list of Genuine Intermotor® parts for a 2007 Volkswagen Jetta

ABS Speed Sensor
Alternator/Generator Voltage Regulator
Ambient Air Temperature Sensor
Blower Motor Resistor
Camshaft Sensor
Combination Switch
Coolant Temperature Sensor
Crankshaft Sensor
Crankshaft Sensor Connector
Daytime Running Lamp Relay
Fuel Door Lock Actuator

Fuel Injector
Fuel Pressure Regulator
Fuel Pressure Sensor
Fuel Pump Relay
Hazard Warning Switch
Headlight Dimmer Switch
Headlight Washer Relay
Ignition Coil
Ignition Lock Cylinder
Ignition Starter Switch
Intake Air Temperature Sensor
Knock Sensor
Neutral Safety Switch Relay

Oil Pressure Light Switch
Power Window Switch
Rear Window Defogger Relay
Stoplight Switch
TPMS Sensor
TPMS Valve
Transmission Input Sensor
Transmission Output Sensor
Turbocharger Boost Sensor
Turn Signal Switch
Windshield Washer Level Sensor
and more



2007 Subaru Impreza

Below is a **partial** list of Genuine Intermotor® parts for a 2007 Subaru Impreza



A/C Control Relay	Coolant Fan Relay	Hazard Flasher
A/C & Heater Blower Motor Switch	Coolant Temperature Sensor	Headlight Dimmer Switch
ABS Speed Sensor	Crankshaft Sensor	Ignition Coil
Alternator/Generator Voltage Regulator	Daytime Running Lamp Relay	Ignition Starter Switch
Back-Up Light Switch	Defroster Relay	Knock Sensor
Blower Motor Relay	Door Jamb Switch	MAP Sensor
Blower Motor Resistor	EGR Valve	Parking Brake Switch
Camshaft Sensor	Fog Lamp Relay	PCV Valve
Canister Purge Solenoid	Fog Lamp Switch	Spark Plug Wire Set
Coil-on-Plug Boot	Fuel Injector	Starter Solenoid
Computer Control Relay	Fuel Pressure Regulator	TPMS Sensor
	Fuel Tank Vent Valve	Turn Signal Switch
		Vehicle Speed Sensor
		and more

2005 Honda Accord

Below is a **partial** list of Genuine Intermotor® parts for a 2005 Honda Accord

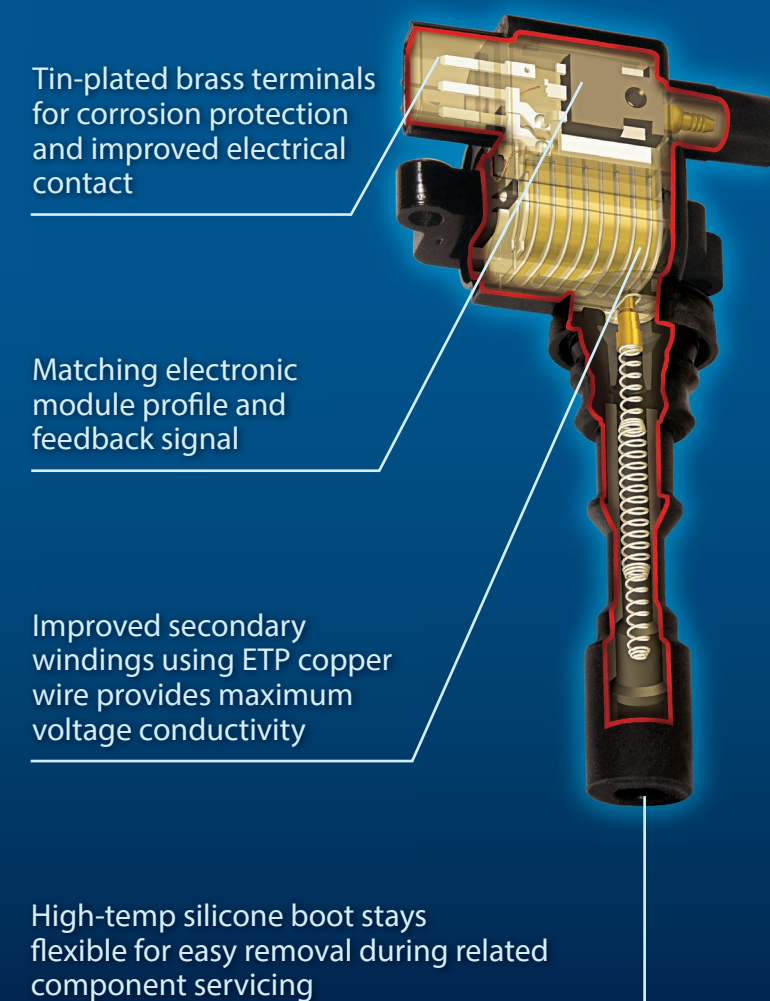


ABS Speed Sensor	Coolant Temperature Sensor	Ignition Coil-on-Plug
Accelerator Pedal Sensor	Crankshaft Sensor	Ignition Lock Cylinder and Switch Assembly
Air Temperature Sensor	Cruise Control Release Switch	Ignition Switch
Back-Up Light Switch	Door Jamb Switch	Knock Sensor
Battery Cable	EGR Valve	Neutral Safety Switch
Blower Motor Relay	Fog Lamp Relay	Oil Pressure Switch
Blower Motor Resistor	Fuel Damper Assembly	Parking Brake Switch
Camshaft Sensor	Fuel Injector	PCV Valve
Canister Purge Solenoid	Hazard Flasher	Power Door Lock Actuator
Clutch Switch	Hazard Warning Switch	Radiator Fan Switch
Coil-On-Plug Boot	Headlight Dimmer Switch	Stoplight Switch
Combination Switch	Headlight Switch	Vehicle Speed Sensor
Computer Control Relay	Idle Air Control Valve	and more

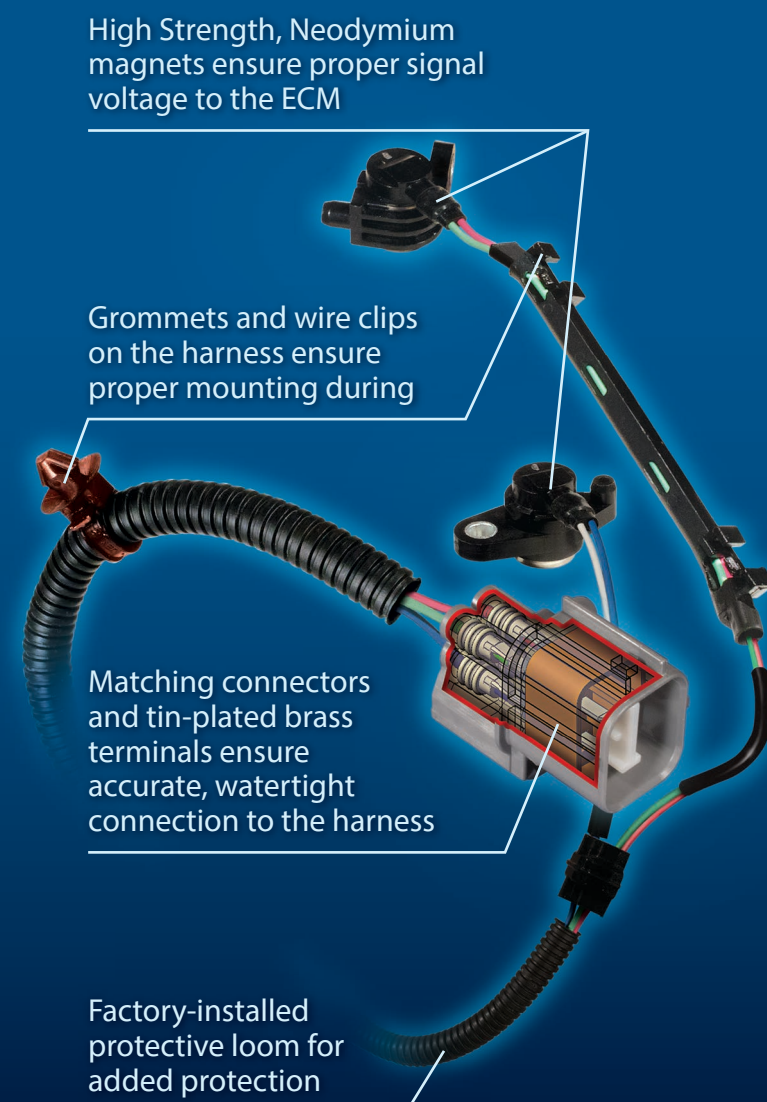


Intermotor[®] Engineers and Manufactures Import Quality into Every Detail

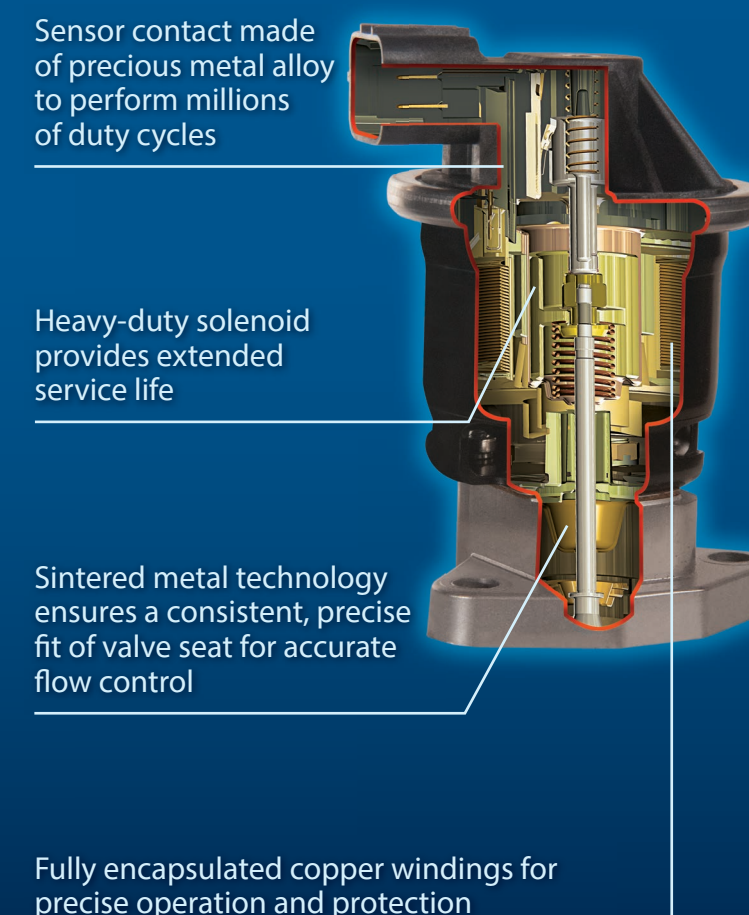
COIL-ON-PLUG ASSEMBLY



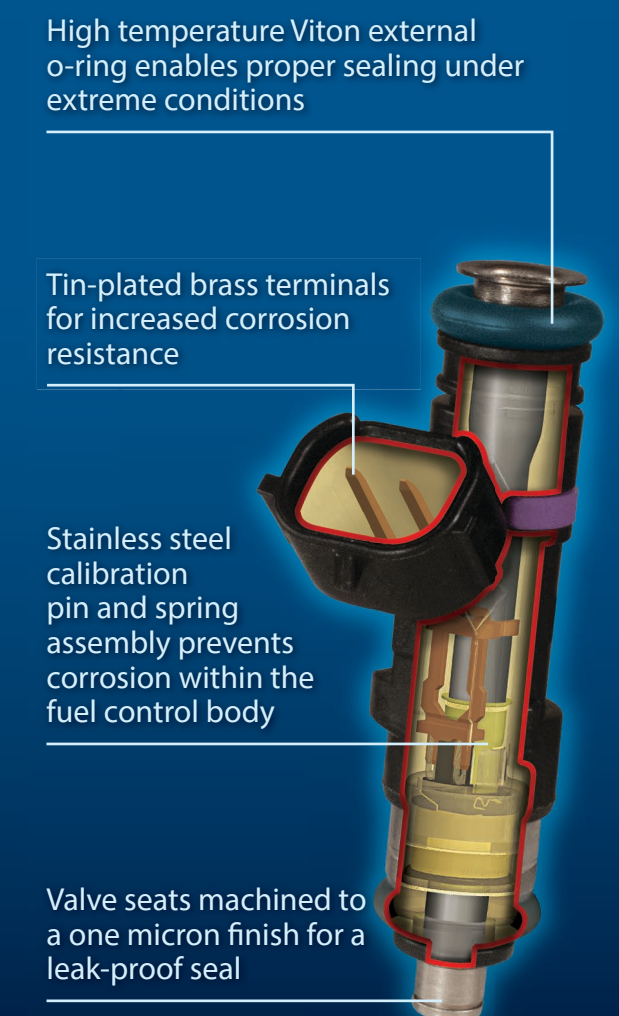
CRANKSHAFT POSITION SENSOR



EGR VALVE



FUEL INJECTOR



Genuine Intermotor® Import Parts Match

INTERMOTOR® is unrivaled for import quality, coverage and original match - and we're very particular. With our TS16949 certified global manufacturing facilities and fully equipped design centers, it's no coincidence that genuine Intermotor® import parts are the finest available. Our engineering and design capabilities are second to none and our passion for quality and testing is unparalleled. Every fit, form and function is scrutinized down to the very last detail. Our dedicated professional engineering team utilizes the most advanced processes and methodologies to ensure that Intermotor® parts will always meet or exceed the original and more important, perform to our demanding standards.

Acura Exact Match EGR Valve



h e m b o E GV1020



A a 8011-P5G-A00

Volkswagen Exact Match Fuel Injector



Inte m b o FJ573



Vb l w g 021 906 031D

Saab Exact Match Crankshaft Sensor



h e m b o P C428



5 5 53 26

Toyota Exact Match Ignition Coil-on-Plug



Inte m b o UF-230



Tp a 90080-19027

INTERMOTOR®, SM P® and the SMP design® are trademarks of Standard Motor Products, Inc. Other trademarks and service marks appearing herein are the property of their respective third party owners, and the appearance of such marks herein does not indicate sponsorship, affiliation, or endorsement by such third parties.

Intermotor®
Genuine Import Parts

THE IMPORT LEADER BY DESIGN

Find out more about replacement air intake parts we have.