

## PM Automotive Parts Catalog

The Powder Metallurgy Automotive Parts Catalog represents the results of an ambitious industry-wide study to account for every known automotive part made by the PM process. The catalog is divided among three main categories or vehicle areas: Engine, Transmission/Transfer Case, and Body/Chassis. In total, the catalog identifies over 300 individual automotive applications, with total parts exceeding 750. Since the survey results are not final, these totals are undoubtedly on the conservative side, with more applications still to be identified. Some estimates suggest the ultimate number may be closer to 1,000 or more parts. The study is a living document and will be updated on an ongoing basis as new applications are identified.

The study was conducted over a two-year period (2007–08) by MPIF under the auspices of both the MPIF Technical Board and MPIF Industry Development Board. Its objective was to help increase the utilization of PM within the automotive industry.

**TECHNOLOGY GOALS:** The catalog can be used to determine what new applications and PM processes can be developed or integrated for use by all automotive manufacturers.

**PROMOTIONAL GOALS:** The catalog shows more accurately the use and importance of PM technology in the automotive industry by listing the number of actual PM applications in a vehicle rather than the average number of pounds of PM material.

If you know of parts that should be added to the PM Automotive Parts Catalog, or to comment on the catalog in any way, please [click here](#).



**Engine**



**Transmission/  
Transfer Case**



**Body/Chassis**

# Engine

## Gasoline/Diesel

Misc. Parts

Camshaft

Crankshaft

Exhaust

Fuel

HVAC

Oil Pump

Power Steering

Starter

Transfer Pump

Turbo Charger

Valve Guides & Seats

VVT (Hydraulic/Mechanical)

Water Pump

## HEV-Electric Motor

Misc. Parts

# Transmission/Transfer Case Automatic

Misc. Parts

One-way Clutch

Planetary Carrier

Pump

## CVT-Automatic

Misc. Parts

Planetary Carrier

Pump

## Transmission-Manual

Misc. Parts

Synchronizer

## Transfer Case

Misc. Parts

## Axle-Differential

Misc. Parts

## HEV-Auto

Misc. Parts

Planetary Carrier

Pump Cam Ring

# Body/Chassis

## Steering & Suspension

Misc. Parts

Shock Absorber

Steering

## Brake

Misc. Parts

## Body

Misc. Parts

Auto Roof

Door

Light

Windshield Washer

## Interior

Misc. Parts

Seat

Steering Column

# Engine

## Gasoline/Diesel

### Misc. Parts

*Air Pump Bearing Retainer*

*Alternator Heat Sink*

*Armature*

*Balance Shaft Sprockets/ Gears*

*Cam*

*Connecting Rods*

*Distributor Gears*

*Distributor Pole Pieces*

*EFI Sensor Ring*

*Emission Control Plates*

*Endplate*

*Gasket Inserts*

*Governor Weight*

*Ignition Coil (Somaloy)*

*Injection Clamps*

*Lever Arm*

*Lock Plate*

*Manifold Balance Rotary Solenoid Housing+Armature*

*Reluctor Wheel*

*Rocker Arm Ball*

*Rocker Arm Fulcrum*

*Rotor Retainer*

*Spark Plug Insulators Fully Automated*

*Spring Seat (Dampers)*

*Sprocket/ Pulley- Intermediate*

*SS Spacer*

*Stator*

*Tensioner Backing Plate*

*Tensioner Pulley*

*Throttle Cam*

*Throttle Shaft Lock*

*Thrust Plate*

*Tone Wheels/Sensors*

*Tungsten heavy alloy crank balance*

# Engine

## Gasoline/Diesel

### Camshaft

*Camshaft Assembly Lobes*

*Camshaft Bearing Caps*

*Camshaft Hold-down Bracket*

*Camshaft Pulley*

*Camshaft Retainer*

*Camshaft Sprocket*

# Engine

## Gasoline/Diesel

Crankshaft

*Crankshaft Bearing Caps*

*Crankshaft Pulley*

*Crankshaft Sensor*

*Crankshaft Sprocket*

# Engine

## Gasoline/Diesel

Exhaust

*Emissions Mini-Manifold (for California emissions)*

*Flanges*

*HEGOs Fittings*

# Engine

## Gasoline/Diesel

### Fuel

*Fuel Eccentric Ring*

*Fuel Injection Sprockets*

*Fuel Pump - Inlet Cover*

*Fuel Pump Adaptor Plate*

*Fuel Pump Bushing*

*Fuel Pump Gears*

*Fuel Pump Gerotors*

*Fuel Pump Housing – Ring*

# Engine

## Gasoline/Diesel

### HVAC

*HVAC Air Conditioner Clutch Hub*

*HVAC Air Conditioner Compressor Swash Plate*

*HVAC Air Conditioner Compressor Valve Plate*

*HVAC Air Conditioner Disk Shoe*

*HVAC Air Conditioner Fan Motor Bronze Bearings*

*HVAC Air Conditioner Slider Block*

# Engine

## Gasoline/Diesel

Oil Pump

*Oil Pump Backing Plates*

*Oil Pump Gears*

*Oil Pump Gerotors*

*Oil Pump Sprocket*

# Engine

## Gasoline/Diesel

### Power Steering

*Power Steering Pump Cam Ring*

*Power Steering Pump Rotor*

*Power Steering Pump Lower Pressure Slide Plates*

*Power Steering Pump Upper Pressure Slide Plates*

*Power Steering Pump Vanes/Slippers*

*Power Steering Pump Yoke*

# Engine

## Gasoline/Diesel

### Starter

*Starter Motor Frame*

*Starter Motor Pinions*

*Starter Motor Plunger Stop*

*Starter Motor Pole Piece*

# Engine

## Gasoline/Diesel

Transfer Pump

*Transfer Pump Blade*

*Transfer Pump Liner*

*Transfer Pump Pressure Plate*

# Engine

## Gasoline/Diesel

### Turbo Charger

*Turbo Charger Adjustment Gear (Hot Side)*

*Turbo Charger Adjustment Ring (Hot Side)*

*Turbo Charger Adjustment Vanes*

*Turbo Charger Thrust Bearing*

# Engine

## Gasoline/Diesel

Valve Guides & Seats

*Valve Guides*

*Valve Seat Inserts- Exhaust*

*Valve Seat Inserts- Intake*

# Engine

## Gasoline/Diesel

VVT (Hydraulic/Mechanical)

*VVT - Cam (Sprocket)*

*VVT - Drive (Outside Member)*

*VVT - Rotor (Inside Member)*

# Engine

## Gasoline/Diesel

Water Pump

*Water Pump Flange*

*Water Pump Impeller*

*Water Pump Pulley*

*Water Pump Pulley Hub*

# Engine

## HEV-Electric Motor

Misc. Parts

*Cam*

*End Plate*

*Housing*

*MoCu heat sinks*

*Rotor*

*Stator*

# Transmission/Transfer Case Automatic

## Misc. Parts

*Armature - Sensor Ring*  
*Clutch Adjustment Ring*  
*Counterweight + Sleeve*  
*Direct Clutch Hub*  
*Drive Sprocket*  
*Driven Sprocket*  
*Forward Clutch Hub*  
*Intermediate Clutch Hub*  
*Lock-up Clutch Collar*  
*Lock-up Converter Hub*  
*Magnetic Clutch Housing*  
*Output Shaft Hub*  
*Park Guide Actuator*  
*Parking Gear*  
*Parking Pawl*  
*Power Take Off Gear*  
*Power Take Off Hub*  
*Pressure Reaction Plates*  
*Ring Gear Hub*  
*Spacer*  
*Support Hub*  
*TCC Stator Clutch Cam*  
*TCC Stator Clutch Sleeve*  
*TCC Turbine Hub*  
*Thrust Washer*

# **Transmission/Transfer Case Automatic**

One-way Clutch

*One-way Clutch Inner Race*

*One-way Clutch Notch Plate*

*One-way Clutch Outer Cam*

*One-way Clutch Outer Race*

*One-way Clutch Pocket Plate*

# **Transmission/Transfer Case Automatic**

Planetary Carrier

*Planetary Carrier Frame*

*Planetary Carrier Gears*

*Planetary Carrier Spacer/Tube*

# Transmission/Transfer Case Automatic

Pump

*Pump Cam Ring*

*Pump Gears*

*Pump Gerotor*

*Pump Rotors*

*Pump Stator*

*Pump Vanes*

# Transmission/Transfer Case

## CVT-Automatic

Misc. Parts

*Annulus Gear*

*Oil Pump Sprocket*

*Pressure Reaction Plates*

*Sun Gear*

# **Transmission/Transfer Case**

## **CVT-Automatic**

Planetary Carrier

*Planetary Carrier Gears*

*Planetary Carrier Housing*

*Planetary Pinion*

# Transmission/Transfer Case

## CVT-Automatic

Pump

*Pump Cam Ring*

*Pump Gears-Gerotor*

*Pump Rotors*

*Pump Stator*

*Pump Vanes*

# Transmission/Transfer Case Transmission-Manual

Misc. Parts

*Clutch Hub*

*Detent-Guide*

*Friction Materials - Clutch Pads*

*Shift Fork*

*Shift Levers*

*Shift Locking Lever Cover*

*Spacer-oil Slinger*

*Speed Gear*

*Thrust Washer*

# Transmission/Transfer Case Transmission-Manual

Synchronizer

*Synchronizer Cone*

*Synchronizer Housing*

*Synchronizer Hub*

*Synchronizer Keys*

*Synchronizer Ring*

*Synchronizer Sleeve*

# Transmission/Transfer Case

## Transfer Case

Misc. Parts

*Annulus Gear*

*Apply Cam*

*Armature - Sensor Ring*

*Base Cam*

*Bushing*

*Case Drive Sprocket*

*Case Driven Sprocket*

*Case Inner Mode Hub*

*Case Main Shaft Hub*

*Case Planetary Carrier Gear*

*Case Planetary Carrier Housing*

*Clutch Backing Plate*

*Clutch Coating*

*Clutch Housing*

*Clutch Hub*

*Differential Carrier*

*Lock-up Clutch Collar*

*Oil Pump Rotor*

*Oil Pump Stator*

*Reduction Carrier*

*Reduction Hub*

*Sleeve*

*Sun Gear*

*Tone Wheel*

# **Transmission/Transfer Case Axle-Differential**

Misc. Parts

*ABS Tone Ring*

*Axle Retainer*

*Bearing Pre-load Adjuster*

*Cam Plate, Locking Differential*

*Differential Gear Clutch Ring*

*End Caps, Locking Differential*

*Fly Weights, Locking Differential*

*Half Shaft Weights*

*Reaction Blocks, End Caps, Locking Differential*

# Transmission/Transfer Case

## HEV-Auto

Misc. Parts

*Annulus Gear*

*Direct Clutch Hub*

*Drive Sprocket*

*Driven Sprocket*

*Output Shaft Hub*

*Parking Gear*

*Parking Pawl*

*Pressure Plates*

*Ring Gear Hub*

*Sun Gear*

*Support Hub*

# Transmission/Transfer Case

## HEV-Auto

Planetary Carrier

*Planetary Carrier Frame*

*Planetary Carrier Gears*

*Planetary Carrier Spacer/Tube*

# Transmission/Transfer Case

## HEV-Auto

Pump Cam Ring

*Pump Gears/Gerotor*

*Pump Rotors*

*Pump Stator*

*Pump Vanes*

# Body/Chassis

## Steering & Suspension

Misc. Parts

*Ball Joint Bearing*

*Drive Axle Bearing Retaining Nut*

*Spring Seat Collar*

*Trailer Axle Bearing Retaining Nut*

*Vibration Dampener Spacer*

# **Body/Chassis**

## **Steering & Suspension**

Shock Absorber

*Shock Absorber Compression Valves*

*Shock Absorber Cylinder Ends*

*Shock Absorber Piston*

*Shock Absorber Strut Rod Guides*

# Body/Chassis

## Steering & Suspension

Steering

*Steering Axle Bearing Retaining Nut*

*Steering End Plate*

*Steering Rack Guide*

*Steering Shifting Lever*

# Body/Chassis Brake

Misc. Parts

*ABS Sensor Pad Holder*

*ABS Sensor Ring*

*Adjuster Nuts*

*Brake Caliper Bushings*

*Disc Brake Pads*

*Drum Brake Wheel Cylinder Piston*

*Friction Materials - Brakes*

*Lock-Master Cylinder*

*Pistons*

*Sensor Mount*

*Spacers for Brake/Clutch Pedal Assembly*

# Body/Chassis

## Body

Misc. Parts

*Air Line Spacers*

*CD Player Motor Bushings*

*Electric Motor Cores and Armatures*

*Headlight Activator Gears*

*Instrument Parts*

*Locking Lug Nut*

*Locking Lug Nut Wrench*

*Power Antenna Motor Bushings*

*Power Seat Motor Bushings*

*Truck Seat Spacers*

*Trunk Release Gear*

# Body/Chassis

## Body

Auto Roof

*Hinge Bracket for Sun Roof Assembly*

*Hinge Brackets - Auto Roof*

*Sunroof Stop Cam*

# Body/Chassis

## Body

Door

*Door Hinge Bushings*

*Door Hinges*

*Door Notch Sleeve*

*Electric Remote Door Gears*

*Electric Remote Mirror Gears*

*Hardware in Minivan Sliding Doors*

*Power Window Motor Bushings*

*Window Lift Gears*

# Body/Chassis

## Body

Light

*Light Bulb Filaments*

*Short Moly Wire for Halogen Lamps (EU & Asia)*

*Tungsten electrodes for Xenon Lamps*

# Body/Chassis

## Body

Windshield Washer

*Windshield Wiper Gears*

*Windshield Wiper Head Bearings*

*Windshield Wiper Head Bushings*

*Windshield Wiper Knurled Drivers*

*Windshield Wiper Motor Flux Rings*

*Windshield Wiper Spherical Bearings*

# Body/Chassis

## Interior

Misc. Parts

*Airbag Hardware*

*Airbag Disk Burst Wedge*

*CD Player Micro Bearings*

*Headrest Lock Plate*

*Ignition Lock Sidebar*

*Lock Parts*

*Pinion Gears*

*Rear View Mirror Mount*

*Speedometer Gears*

*Tachometer Sensing Ring*

# Body/Chassis

## Interior

Seat

*Power Seat Adjustment Rack*

*Power Seat Pinion*

*Power Seat Rack*

*Seat Adjustment Gears*

*Seat Adjustment Levers*

*Seat Belt Wedge Retainer*

*Seat Recliner Parts*

*Seat Safety Belt Locks*

# Body/Chassis

## Interior

### Steering Column

*Steering Column Collar*

*Steering Column Flag*

*Steering Column Gears/Ignition Key Lock Gear*

*Steering Column Inner Cylinder Bulkhead*

*Steering Column Lock Bolt*

*Steering Column Locking Wedge*

*Steering Column Magnetic Pole Piece*

*Steering Column Passive Restraint Locking Pawls*

*Steering Column Pawl*

*Steering Column Rack Bearing*

*Steering Column Signal Light Lever*

*Steering Column Solenoid Actuator*

*Steering Column Staff*

*Steering Column Support*

*Steering Column Tilt Ratchet Lever*

*Steering Column Torsion Bar Bushing*