

NEW

US forecasts to 2008 & 2013

Freedonia®

Heavy-Duty Truck Aftermarket

Study # 1789

April 2004

\$3900

MD/HD aftermarket demand to grow 3.2% yearly to 2008

The US aftermarket for medium- and heavy-duty (MD/HD) components and parts is projected to rise at an annual rate of 3.2 percent, reaching \$12.6 billion by 2008. This rate represents a plateau in demand compared to historical trends, though some segments of the market, such as emissions controls and electronics, will experience much faster growth. The slowing of aftermarket revenue growth will result from both the expected increases in new truck purchases over the next five years and from product improvements made by the original equipment manufacturers (OEMs) of MD/HD vehicles.

Overall new product quality and resulting durability has been improving in MD/HD vehicles over the past decade. Perhaps the most notable example of this trend is the increasing number of diesel engines designed to run up to an astonishing 500,000 miles between oil changes and 500,000 to one million miles between major overhauls. The increased use of new, more durable materials and designs, coupled with the continued

Mechanical
46%

Exterior/
Structural
37%

Electrical/
Electronic
17%

US Medium- and Heavy-Duty Truck Aftermarket by Product (\$10.3 billion, 2003)



New exhaust emissions control systems--especially those mandated for diesel engines -- will provide new opportunities for MD/HD suppliers.

shift toward the use of advanced electronics sensing and control systems, continues to play a major role in reducing MD/HD truck maintenance and repair costs.

Electronic parts and components to see most rapid gains

The largest product category in the aftermarket will continue to be mechanical products, which include non-electric/electronic engine hard parts and chassis, drivetrain and suspension parts and components. However, growth will be limited by the

improved quality of these already highly durable products, as well as by the expected purchase of new vehicles over the next five years, which will reduce the overall MD/HD park's age and repair requirements.

Electronic parts and components will witness the highest annual growth, a direct result of the continued transformation of the MD/HD truck from a mechanical machine with electronic enhancements into a software-driven device. Demand for electronic controls and modules will be strong, as will continued demand for telematics-

related fleet management equipment, which is largely aftermarket-installed.

In-house service to remain dominant

The dominance of in-house service provision will continue, although the strong presence of third party fleet maintenance organizations such as PHH and GE Capital will remain. Other outsourced service providers such as dealerships, garages and truck stops will also maintain their shares, especially in the line-haul segment, where access to in-house breakdown repair facilities is limited. Dealers, in particular, depend on service work to counteract wild swings in new truck demand that occur on a regular basis.

Study coverage

These and other findings are presented in **Heavy-Duty Truck Aftermarket**, a new Freedonia study available for \$3900. This study provides historical data to 2003 plus forecasts to 2008 and 2013 for medium- and heavy-duty truck aftermarket parts and components demand by product and performer. Detailed profiles of major industry participants are presented, along with in-depth analysis of key competitive trends and factors.

Table of contents & sample pages inside; other studies, order information on back

Table of Contents, List of Tables & Charts

each table includes forecasts through 2008 & 2013

Introduction

EXECUTIVE SUMMARY

Summary Table	3
---------------------	---

MARKET ENVIRONMENT

General	4
Macroeconomic Environment	6
Table - United States Macroeconomic Environment	7
Truck Supply & Demand Dynamics	7
Chart - Motor Vehicle Weight Classes	8
Table - Truck Supply & Demand	10
Vehicle Park	10
Table - Vehicle Park	12
Pricing Trends	12
Technology & Materials Trends	13
Foreign Trade & International Issues	15
Global Aftermarket Parts Supply & Demand Trends	16
Table - World Truck Aftermarket by Region	18
Trends in Foreign Trade	18

INDUSTRY TRENDS

General	20
Table - Truck Aftermarket	22
Chart - Aftermarket by Segment, 2003	22
Medium & Heavy-Duty Truck Industry Trends	23
Chart - Trends in Annual Miles Driven per Vehicle, 1963 to 2001	23
The Trend toward Integration	24
Light Vehicle Aftermarket Differences	27
Chart - Aftermarket Channels	28
Component Rebuilders	29
Vehicle Quality Improvements	30
Legal & Regulatory Trends	31
Air Quality	33
Safety	35
Spark Ignition Engine Technology	36
Basic Spark Ignition Engine Operation	36
Spark Ignition Engine Overview	37
Indirect Fuel Injection Systems	38
Direct Fuel Injection Systems	41
Variable Valve Timing Systems	42
Cylinder Deactivation Systems	43
Feedback Plasma Ignition Systems	43
Hydrogen-Fueled Spark Ignition Engine	44
Diesel Engine Technology	44
Basic Diesel Engine Operation	45
Emission Control Technology	46
Fuel System Enhancements	47
Turbocharging & Charge Air Cooling	49
After-Treatment Devices	50
Electronic Engine Controls	51
Diesel Fuel Enhancements	52
Other Technologies	53

MECHANICAL PRODUCTS AFTERMARKET

General	55
Table - Mechanical Products Aftermarket	57
Engines & Parts	57
Table - Engines & Parts Aftermarket	60
Engines, Blocks & Cylinder Heads	60
Turbochargers & Related Parts	61
Pistons, Rings & Liners	62
Bearings, Camshafts & Crankshafts	64
Valves, Seats & Related Parts	65
Other	66
Brake Parts	67
Table - Brake Parts Aftermarket	70
Steering & Suspension Components	70
Table - Steering & Suspension Aftermarket	73
Drivetrain Components	73
Table - Drivetrain Components Aftermarket	75
Transmissions, Parts & Clutch Assemblies	75
Table - Transmissions, Parts & Clutch Assemblies Aftermarket	78

Fuel System Components	78
Table - Fuel Systems Components Aftermarket	81
Cooling System Components	82
Table - Cooling System Components Aftermarket	85
Exhaust/Emission System Components	85
Table - Exhaust/Emission System Components Aftermarket	87
Filters	87
Table - Filters Aftermarket	88
Oil Filters	88
Air Filters	90
Fuel Filters	90
Other Filters	92

EXTERIOR & STRUCTURAL PRODUCTS AFTERMARKET

General	93
Table - Exterior & Structural Products Aftermarket	94
Tires	94
Table - Aftermarket Tire Demand	97
Windows & Glass	97
Table - Windows & Glass Aftermarket	100
Other	100
Table - Other Exterior & Structural Products Aftermarket	101

ELECTRICAL/ELECTRONIC PRODUCTS AFTERMARKET

General	102
Table - Electrical & Electronic Products Aftermarket	103
Electronics Products Aftermarket	103
Table - Electronic Products Aftermarket	105
Telematics, Navigation & Fleet Tracking Systems	105
Table - Telematics, Navigation & Vehicle Tracking Systems Aftermarket	107
Electronic Controls, Modules & Sensors	107
Table - Electronic Controls, Modules & Sensors Aftermarket	109
Other Electronic Products	109
Table - Other Electronic Products Aftermarket	110
Electrical Products Aftermarket	111
Table - Electrical Products Aftermarket	112
Batteries	112
Table - Batteries Aftermarket	114
Charging & Starting Equipment	114
Table - Charging & Starting Equipment Aftermarket	116
Lighting Equipment	116
Table - Lighting Equipment Aftermarket	118
Other Electrical Products	118
Table - Other Electrical Products Aftermarket	120

MEDIUM- & HEAVY-DUTY TRUCK AFTERMARKET BY PERFORMER

General	121
Table - Parts Aftermarket Demand by Performer	123
In-House Service Providers	123
Table - In-House Aftermarket by Type	125
Fleets	125
Owner Operators	126
Outsourced Service Providers	127
Table - Outsourced Aftermarket by Type	129
Independent Garages	129
Truck Dealerships	130
Other	132

INDUSTRY STRUCTURE

General	133
Industry Composition & Market Share	134
Chart - Aftermarket Market Share by Company, 2003	137
Table - Sales of Selected Aftermarket Suppliers, 2003	138
Mergers, Acquisitions & Industry Restructuring	139
Table - Selected Acquisitions & Divestitures	141
Product Development & Manufacturing	142
Marketing	144
Distribution	145
Financial Issues & Requirements	146
Strategic Partnerships	147
Table - Selected Cooperative Agreements	149

Company Profiles	152-226
------------------------	---------

Study #1789 - "Heavy-Duty Truck Aftermarket"

INDUSTRY TRENDS

SAMPLE PAGE

The Trend Toward Integration

The MD/HD truck industry has faced a trend over the past two decades, as Western European original equipment manufacturers (OEMs) have acquired the formerly independent MD/HD truck OEMs in the United States. The historical US model was fundamentally different from that of Western Europe, especially in terms of the class 8 heavy truck sector. In the US, suppliers of what could be considered the core elements of a heavy truck: the diesel engine, transmission and drive axles, had gained control of the marketplace to such an extent that customers routinely specified these components by supplier brand name when purchasing a new truck. Most traditional US heavy truck makers are in essence assemblers who build up the chassis, then add in the engine, transmission, axles and other parts specified by the customer.

The US heavy-duty truck industry evolved into this unique structure over the past 70 years. There were actually two competing strategies which truck OEMs adopted: a vertically-integrated strategy currently exemplified by Mack Trucks, which would build engines, axles and transmissions in-house, allowing customers little say in selecting alternatives for these (and many other) components. Proponents of the alternative "build to order" strategy such as FWD (no longer an independent heavy truck producer) and most currently companies like PACCAR and Freightliner, have allowed customers significant leeway in specifying the elements of their trucks. Buyers could specify a 500 hp Caterpillar diesel for traversing Western state mountains or a 200 hp Cummins for better fuel economy. They could order a Rockwell tandem drive axle, an Eaton/Fuller transmission and a Hendrickson suspension. The big, resourceful component suppliers did much of the pure technology development and R&D work for their respective components; the truck makers just had to make sure everything would fit and work together.

Under this strategy, the build-to-order differentiating elements of their vehicle frame design and total packaging, styling

Explanations that support each table's data and forecasts

© Copyright by The Freedonia Group, Inc.

Freedonia's methods involve:

- Establishing consistent economic and market forecasts
- Using input/output ratios, flow charts and other economic methods to quantify data
- Employing in-house analysts who meet stringent quality standards
- Interviewing key industry participants, experts and end-users
- Researching a proprietary database that includes trade publications, government reports and corporate literature

MECHANICAL PRODUCTS AFTERMARKET

TABLE IV-1

MEDIUM & HEAVY TRUCK MECHANICAL PRODUCTS AFTERMARKET (million US dollars)

Item	1993	1998	2003	2008	2013
MD/HD Vehicles in Use (million)	3.6	4.2	5.1	5.3	5.5
\$ aftermarket/vehicle					
Mechanical Products Aftermarket					
Engines & Parts					
Filters					
Drivetrain Components					
Exhaust/Emission Sys Components					
Transmissions & Parts					
Brake Parts & Assemblies					
Steering & Suspension Components					
Cooling System Components					
Fuel System Components					
% mechanical					
Total MD/HD Aftermarket					

SAMPLE TABLE
Historical data through 2003 plus Freedonia forecasts to 2008 and 2013

Source: The Freedonia Group, Inc.

Engines & Parts

Demand for aftermarket medium- and heavy-duty truck engine parts is projected to increase the forecast average per million, below the aggregate. Demand will be held component quality. Gains will result from trucks sold during the economic expansion. Supplies for parts suppliers as these engines are repaired and maintained over their useful lives. In addition to conventional maintenance, some parts demand will be generated by retrofitting existing diesel engines to run cleaner, and from converting diesel

Data illustrated with the aid of 36 tables and charts

© Copyright by The Freedonia Group, Inc.

This study can help you:

- Determine your market & sales potential
- Learn more about industry competitors
- Assess new products & technologies
- Identify firms to merge with or acquire
- Complement your research & planning
- Gather data for presentations
- Confirm your own internal data
- Make better business decisions

COMPANY PROFILES
presented for over 35 US players such as ArvinMeritor, Dana, Eaton, Goodyear, Michelin, Cooper Tire & Rubber and Bridgestone/Firestone

Order Information

To order fill out the coupon below and mail to The Freedonia Group, or place your order by phone **toll free (800) 927-5900 (US)** or **(440) 684-9600**, or by fax **(440) 646-0484**, or by e-mail **info@freedoniagroup.com**

Free Handling and Shipping

There is **NO** charge for handling and UPS shipping in the US. Expect delivery in 3 to 5 days. Outside the US, Freedonia provides free airmail service. If you require express delivery, Freedonia provides this to you at cost.

Save Fifteen Percent

If you order three (3) different titles at the same time, you can receive a discount of 15%. **If your order is accompanied by a check, you may take a 5% cash discount** (discounts do not apply to corporate use licenses).

Credit Card Orders

You may charge your order to either **American Express, MasterCard** or **Visa**. Please include your credit card account number, expiration date and your signature.

Orders Outside of the US

Checks must be paid in US funds, drawn against a US bank and mailed directly to The Freedonia Group. Wire transfers should be sent to: Fifth Third Bank, Cincinnati, OH, SWIFT No. FTBCUS3C, ABA #042000314, Account #7520576476 (please include study number and/or invoice number with all wire transfers). Or you may use a credit card.

Corporate Use License

Now every decision maker in your organization can act on the key intelligence found in all Freedonia studies. For an additional \$2,000 you receive unlimited use of an electronic version (PDF) of the study. Place it on your Intranet, e-mail it to coworkers around the world, or print it as many times as you like! Order it today.

Online Access: The complete text and tables from our studies and reports can be purchased at our website **www.freedoniagroup.com** and through major commercial online hosts.

Other Titles from The Freedonia Group

Automotive Aftermarket in China

The aftermarket for automotive and farm vehicle parts in China will grow 11.6% annually through 2007. Gains will be driven by rapid new light vehicle sales and a shift towards consumer purchasers. Mechanical products will remain the largest category while electronics (e.g., security, controls) grow the fastest. This study analyzes the US\$1.8 billion Chinese automotive aftermarket to 2007 and 2012 by product, service performer and vehicle. It also evaluates market shares and profiles major industry competitors.

#1740 11/2003 \$3900

Diesel Engines & Parts

Demand for US diesel engines and parts will grow 5.7% annually through 2007. Fueling gains will be a recovery in heavy-duty truck, construction equipment and industrial machinery markets coupled with further penetration of diesel engines into cars and generators. Regulations will favor newer products with better performance and fuel economy. This study analyzes the \$11.4 billion US diesel engine industry to 2007 and 2017 by product and application. It also evaluates market share data and profiles leading firms.

#1714 09/2003 \$3900

World Automotive Aftermarket

Global demand for automotive aftermarket products will grow 5% per year through 2007. Gains will be driven by a growing motor vehicle park, continued maintenance and repair of older vehicles, and greater use of higher value automotive electronics. Mechanical products will remain dominant while electronics rise the most rapidly. This study analyzes the US\$113 billion automotive aftermarket industry to 2007 and 2012 by product, world region and for 20 countries. It also evaluates market shares and profiles key companies worldwide.

#1674 05/2003 \$4800

Power Lawn & Garden Equipment

US power lawn and garden equipment demand will approach \$10 billion in 2007. Gains will be driven by increasing demand for lighter weight and higher horsepower products, as well as by the innovations such as zero radius riding mowers. Gas-powered equipment will remain dominant while battery-powered products grow faster. This study analyzes the US power lawn and garden equipment industry to 2007 and 2012 by market, product and US region. It also assesses market share and profiles key firms.

#1648 03/2003 \$3900

World Agricultural Equipment

Worldwide demand for tractors, harvesters, planters and fertilizers, plowers and cultivators, haying and other farm machinery will rise 4.2% annually through 2006. Gains will be driven by accelerating economic activity worldwide and the increasing replacement of draft animals and human labor by machinery in developing regions. This study analyzes the US\$54 billion worldwide agricultural equipment industry to 2006 and 2011 by product, region and for 26 countries. It also evaluates market share and profiles global industry participants.

#1611 11/2002 \$4800

Need analysis on a topic
not covered by
Freedonia Industry Studies?
Call Customer Service
for details on
Freedonia Custom Research

ORDER FORM

Name: _____

Title: _____

Company: _____

Division: _____

Street: _____
(no PO Box please)

City/State/Zip: _____

Country: _____

Phone: _____ Fax: _____

e-mail: _____

TITLE

PRICE

Heavy-Duty Truck Aftermarket **\$3900**

Corporate Use License (add to study price) **+ \$2000**

 Additional Print Copies @ \$400 each

Total (including selected options): \$ _____

Enclosed is my check (5% discount) drawn on a US bank and payable to The Freedonia Group, Inc., in US funds (Ohio residents add 8% sales tax)

Bill my company American Express MasterCard Visa

Credit Card #

MONTH _____ YEAR _____

Expiration Date

Signature: _____

The Freedonia Group, Inc. 767 Beta Drive Cleveland, OH 44143-2326 USA **website:** www.freedoniagroup.com
phone: 800-927-5900 (US) or 440-684-9600 **fax:** 440-646-0484 **e-mail:** info@freedoniagroup.com