Analysis of TRW-Blackstone Deal

These are tough economic times for the auto industry. After decades of consolidation, there are still too many carmakers and too many parts suppliers. Exit barriers for carmakers are very high, given their huge economic value to the countries where they operate and the great number of employees who rely on carmakers for their living. As a result, carmakers continue to battle hard over car prices and parts costs. And since the exit barriers for suppliers are also very high, the number of suppliers is not shrinking very fast. Because carmakers regularly find alternative suppliers that will step in even at deflated prices, prices have stayed painfully low.

TRW Inc. had been trying for years to get rid of its automotive parts business, especially after TRW acquired LucasVarity in 1999 for $7 billion. That deal left TRW with a huge debt load, which limited its options and hurt profits. Not long after the Lucas acquisition, TRW was back in the market trying again to unload its automotive division. In a deal that was approved by stockholders on December 11, 2002, TRW Inc. was purchased by Northrop Grumman, a top defense contractor. Northrop Grumman will keep TRW’s defense systems business and is selling TRW Automotive as well as TRW Space & Electronics. In 2001, TRW Automotive contributed 62% of TRW Inc.’s sales.

In a deal announced November 19, 2002, Blackstone Group, a leading investment firm from New York City, agreed to purchase a majority interest in TRW Automotive. Blackstone will hold the TRW Automotive stake in one of its investment funds called Blackstone Capital Partners IV for at least a few years, until TRW’s value as an operating business.

Interest in Fuel-Cell Vehicles is Growing

Suppliers Needed for Fuel-Cell Vehicle Electronics

Auto electronics suppliers should begin watching the fledgling fuel-cell vehicle industry more closely. In a decade or two, fuel-cell-powered vehicles will start to significantly erode the demand for internal combustion-equipped vehicles. Engine management electronics, including controllers, actuators and sensors, currently account for roughly half of the $65 billion worldwide automotive electronics market. That engine management market will in time be affected negatively by the growing demand for fuel-cell vehicles. Engine electronics producers will need to come up with new strategies to cope with the expected decline in demand for IC-engine electronics and software and the expected increase in demand for fuel-cell control electronics, power electronics and software required by fuel-cell vehicles. Commercialization of fuel-cell vehicles could begin as soon as 2010 or 2015. High-volume production could be underway by 2020 or sooner.

A fuel cell converts the energy from a fuel, usually hydrogen, directly into electricity using an electrochemical conversion process. To generate enough voltage to power a car, a number of cells are combined in series to form a stack. Each of the 200 or so fuel cells that comprise the stack consists of two electrodes, the anode and the cathode, which are separated by a non-conducting electrolyte. Hydrogen is fed to the anode, and air is fed to the cathode. Each fuel cell produces water and heat plus free electrons, which account for the electrical power the fuel cell is designed to produce.

Fuel cells promise enormous benefits. They develop power twice as efficiently as gasoline engines. Unlike internal combustion engines, fuel cells are totally quiet, and they emit no pollutants and no CO₂ or other greenhouse gases. Water and heat are the only by-products. According to a well-to-wheel analysis of fuels done for General Motors, fuel cells powered by hydrogen made from renewable energy sources are the best long-term answer to meeting the auto industry’s fuel-efficiency, emissions and CO₂ challenges. Fuel-cell vehicles will be fueled with hydrogen carried aboard the vehicle. Because onboard hydrogen reformers that convert methane or gasoline to hydrogen are hard to start and add cost and complexity, they will not be used by GM and others.

There are many ways to produce hydrogen off-board. Hydrogen can be reformed from crude oil, coal, natural gas or from renewable energy sources such as ethanol. Hydrogen can also be generated from water by using electrolysis, a process through which a compound is broken down into its constituent parts by passing an electrical current through it. The electrical energy required for electrolysis could be generated by clean power sources such as solar, hydro, wind, wave or geothermal.

Fuel-cell hype is well underway, as carmakers and suppliers issue press releases and publish technical papers. Automakers are pouring hundreds of millions of dollars into fuel-cell research. Major carmakers including Toyota, Honda, GM and DaimlerChrysler are claiming to be major fuel-cell players. GM wants to be the first carmaker to produce one million fuel-cell vehicles. GM has said that it will commercialize fuel-cell vehicles by 2010 and have 5 million on the road by 2020. Prototype fuel-cell vehicles are already on the road. DaimlerChrysler sold a limited series of fuel-cell buses in 2000. Toyota has seven fuel-cell vehicles operating on U.S. and Japanese...
Fuel Cells...

roads. Honda delivered five fuel-cell vehicles to the city of Los Angeles in December 2002.

Obstacles
Despite what the carmakers say about how soon their fuel-cell projects will be realized, there are enormous obstacles yet to be overcome, which leads to a great deal of uncertainty as to when full-scale production will begin.

While impressive gains have been made over the last few years, the cost of the fuel-cell vehicle is still way too high. And the industry hasn't yet demonstrated how it will develop the infrastructure needed so fuel-cell owners can conveniently and economically fuel up with hydrogen. A 2002 paper by DaimlerChrysler titled “Impact of Future Fuels,” a hydrogen-fuel infrastructure capable of supplying 10% of Europe’s road fuel consumption would cost from $75 billion to $120 billion to build.

A GM presentation on the fuel cell calls onboard hydrogen storage the toughest challenge: “Liquid, compressed gas and solid-state storage are all promising but all present problems. Liquid hydrogen offers the benefits of high energy density, but work still must be done to reduce the boil-off rate. Compressed-gas tanks are most likely early on, but high compression remains a perceived safety issue.”

Another major cost hurdle is the power electronics necessary to convert approximately 300 volts of DC developed by the fuel-cell stack into AC to run the traction motor. DC to DC conversion is also needed to convert 300 volts DC into 14 and 42 volts DC to power other vehicle systems. According to General Motors, such power electronics systems are still orders-of-magnitude too expensive. Power semiconductors, especially MOSFETs (metal oxide semiconductor field effect transistors) and IGBTs (insulated gate bipolar transistors) are much too expensive today and generate too much heat. The DC to AC converter develops so much heat that the package will likely require active cooling, probably by water.

The driving range of a fuel-cell vehicle must also be improved, from a few hundred miles today to about 450 miles, which is comparable to IC engine-powered vehicles. And the weight-to-power ratio of fuel cells is still considerably higher than it should be.

GM Backs Fuel Cells For the Long Term
At the 2003 Detroit Auto Show in January, General Motors announced that starting in late 2003 it would offer hybrid powertrains as an option on more than a dozen popular models, including trucks and SUVs. But for GM, hybrids are only an interim solution to the problems of fuel economy and emissions—the company believes that hydrogen fuel-cell-powered vehicles are the ultimate answer. GM also believes that its experience developing and marketing the EV1 electric vehicle will help as it develops fuel-cell vehicles.

General Motors has already spent hundreds of millions of dollars on fuel-cell research, but technical and cost challenges remain, and GM wants help. “We need suppliers to join us in this task so the science can catch up to the business opportunity,” said Ray Pollard, head of fuel-cell purchasing at GM. “While we already have roughly 300 suppliers working with us, most of them are small companies. The big tier-one and tier-two suppliers say they can’t wait six years for automotive fuel-cell applications. Those suppliers need to show return on investments in continued on following page
one or two years, but we need them now. We’re inventing things we think they probably already know,” said M r. Pollard.

GM realizes that the best potential suppliers will need greater inducements to get them to participate in GM fuel-cell-vehicle research. Ray Pollard: “While we will keep some fuel-cell technology in-house, we do not plan to manufacture fuel-cell electronics. So if an electronics supplier said, ‘we’re not sure how quickly this market will develop, so we’d like to put some of our E/Es on a project team with you and just follow the path wherever it’s going,’ that’s the kind of help we need.” To get that sort of help, M r. Pollard suggested he would be willing to sign agreements with suppliers that give them some volume of business. In return, suppliers would be expected to honor a quiet period for a certain number of years, during which they wouldn’t compete with GM or sell to a GM competitor. While GM won’t commit to specific volumes, during which they wouldn’t compete with GM or sell to a GM competitor. While GM won’t commit to specific volumes, since it has no idea what those volumes will be, it will commit to specific suppliers for certain periods of time.

In order to shorten the payback on fuel-cell investments, GM will launch some interim new products that are likely to be financially viable before fuel-cell vehicles. “To do the vehicles, we need to get down to well under $100 per kilowatt,” said M r. Pollard. “Today, hydrogen fuel cells are north of $1,000 per kilowatt. Once we get under $1,000, other markets will kick in.” GM is interested in the battery pack replacement market and the power back-up market outside of the automotive industry. “The sweet spot in this auxiliary power market is for electric power sources between five kilowatts and a couple of hundred kilowatts,” M r. Pollard added. Fuel-cell vehicles will require more than 70 kilowatts (52 horsepower) of traction power.

In addition to lowering the cost of the inverter and power semiconductors, GM is looking for MOSFETs and IGBTs with lower on-resistance. A s crucial are power management and motor control algorithms needed to conserve power and operate the vehicle efficiently with good performance. A ccording to Bill Slomski, responsible for the development of fuel-cell vehicle power electronics at GM, a number of approaches can be taken to drive down the cost curve. “We need to reduce the number of components and use them more efficiently— through integration and by packaging the power electronics with the traction motor,” he said. Components must be made smaller and component temperatures must be kept low.

Matt Fronk, in charge of GM fuel-cell development, said he needs suppliers to work on a number of fuel-cell elements. He wants suppliers that can develop the air supply to the fuel stack and suppliers that can develop hydrogen storage and metering components. Suppliers are also needed to work on new types of sensors to monitor hydrogen concentration and on wiring the fuel cells together.

Software algorithms are needed to control the fuel cell’s electrical output and to diagnose any potential problems. A ditional help is needed with instrumentation, for example to monitor output power and hydrogen level in the tank. Fuel-cell controls, which take charge of the vehicle’s feel and drivability, are as complex as the controls necessary to run today’s internal combustion engine powertrains. ◆

Fuel-Cell Vehicles - Auto Industry Developments

◆ BMW announced in 1999 that it wanted to be the first automaker to build a production fuel-cell-powered car. BMW and Delphi jointly developed a fuel-cell auxiliary power unit (APU), which BMW plans to offer in five years.

◆ Ford plans to introduce limited quantities of a fuel-cell version of the Focus, beginning in 2004, ramping up volume incrementally. In 2002 Ford built 15 Focus FCVs for demonstration and testing.

◆ Intending to be the world’s first carmaker to make one million fuel-cell autos, GM plans to start making fuel-cell production vehicles by 2010. According to Automotive News, GM plans to offer fleet-ready fuel-cell vehicles by 2008. Before that, GM intends to make fuel-cell auxiliary power units for non-vehicle markets, as battery pack replace-

Continued from page 2
Forty-nine percent of these products are current production and older vehicles. Aftermarket customization products, such as body appearance packs, accessories, and in-car entertainment systems for products include body appearance packs and accessories for older vehicles. The company has a total of 106 manufacturing locations worldwide, 11 regional assembly plants, and a total of 25 customer service centers and 41 technical centers, in a total of 25 countries. Visteon operates a 100% of its interest in the company. Peter J. Pestillo has been CEO and chairman of the board since Visteon’s incorporation.

**Background**

In 1997 Ford Motor Company changed the name of its in-house automotive parts operation to Visteon. Visteon was incorporated on January 5, 2000 and on June 28, 2000, was taken public; Ford sold 100% of its interest in the company. Peter J. Pestillo has been CEO and chairman of the board since Visteon’s incorporation.

Visteon maintains regional headquarters in Dearborn, Michigan; Cologne, Germany; Yokohama, Japan; and Sao Paulo, Brazil. The company operates a total of 106 manufacturing locations worldwide, 11 regional assembly plants, 25 customer service centers and 41 technical centers, in a total of 25 countries.

Given its broad product line, Visteon says it can deliver up to 40% of a vehicle’s content, including vehicle systems such as powertrain electronics, climate, chassis, interiors and exteriors.

Three percent of Visteon’s 2001 shipments, including replacement and customization products, were shipped to customers in the aftermarket. A aftermarket products include body appearance packages and in-car entertainment systems for current production and older vehicles. Forty-nine percent of these products are sold to Ford’s automotive consumer service group; 51% were sold to independent aftermarket retailers. Visteon does not compete in the consumer audio products aftermarket.

**Transition**

The transition from captive supplier to Ford, where there was little real competition, to independent supplier in the highly competitive merchant market has been hard on Visteon, particularly when you consider the timing of the spin-off— as the U.S. economy was softening—and the handicaps Visteon inherited from Ford.

Among Visteon’s biggest handicaps is its agreement with Ford on pricing, which required a 5% price reduction on all of the products Visteon was selling to Ford as of January 1, 2000. A according to Visteon financial filings, that agreement required further price reductions in 2000, 2001, 2002 and 2003 to reflect competitive price reductions obtained each year by Ford from its other tier-one suppliers. Visteon agreed to an additional 3.5% reduction for 2000, but resisted other price reductions. In March 2002, Visteon reached a settlement on the disputed pricing for North America for calendar 2001 and 2002. European pricing issues were settled this past June. Terms of the settlements were not disclosed.

Additionally, when Visteon was spun off from Ford, it inherited thousands of U.S. and Canadian employees who are trade union members. A result, Visteon must pay significantly more in wages and benefits for hourly workers than many of its competitors. A nother worry, according to an August 25, 2002 article from Reuters, is that Visteon is one of many corporations, including its arch-competi-

**The Company Profile...**

**Visteon Corporation**

**Headquarters:** 17000 Rotunda Drive, Dearborn, Michigan 48120; telephone 1-800-847-8366; www.visteon.com

**2001 Sales:** $17,843 million

**Products:** Automotive components, modules and systems

**2001 Net Profit:** minus $118 million

**2001 R&D:** 6.0% of sales

**Employees:** 79,000 as of February 2002

**2001 Sales per Employee:** $226,000

**Top Customer:** Ford accounts for 82% of sales.

**Visteon Electronics**

**2001 Sales:** About $2.5 billion, 13% of total

**Top Selling Products:** Powertrain control modules, radios and instrument clusters

**2001 Top Customers:** Predominantly Ford, followed in order by Hyundai, PSA, Mazda, Renault, Honda, GM and VW

*Visteon Electronics is no longer a separate business entity.*

**2001 Sales**

<table>
<thead>
<tr>
<th>Products</th>
<th>2001 Sales in $ Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive operations</td>
<td>$16,187</td>
</tr>
<tr>
<td>Glass operations</td>
<td>$906</td>
</tr>
<tr>
<td>Total</td>
<td>$17,093</td>
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</table>

**2001 R&D**

<table>
<thead>
<tr>
<th>Region</th>
<th>Employees</th>
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</thead>
<tbody>
<tr>
<td>North America</td>
<td>6,150</td>
</tr>
<tr>
<td>Europe</td>
<td>5,666</td>
</tr>
<tr>
<td>ROW</td>
<td>5,786</td>
</tr>
<tr>
<td>Total</td>
<td>17,592</td>
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</tbody>
</table>

**2001 Top Customers**

<table>
<thead>
<tr>
<th>Customer</th>
<th>2001 Sales</th>
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</thead>
<tbody>
<tr>
<td>Predominantly Ford</td>
<td>$15,925</td>
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<tr>
<td>Other OEM</td>
<td>$750</td>
</tr>
<tr>
<td>Total</td>
<td>$16,675</td>
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</table>

**2001 Net Margin**

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>3.2%</td>
</tr>
<tr>
<td>1998</td>
<td>4.3%</td>
</tr>
<tr>
<td>1999</td>
<td>4.3%</td>
</tr>
<tr>
<td>2000</td>
<td>1.4%</td>
</tr>
<tr>
<td>2001</td>
<td>(0.7%)</td>
</tr>
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</table>

**2001 Sales and Net Margin**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales in $ Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>17,220</td>
</tr>
<tr>
<td>1998</td>
<td>17,762</td>
</tr>
<tr>
<td>1999</td>
<td>19,366</td>
</tr>
<tr>
<td>2000</td>
<td>19,467</td>
</tr>
<tr>
<td>2001</td>
<td>17,843</td>
</tr>
</tbody>
</table>

**Visteon Sales by Customer Segment**

- *Ford, 82%*
- *Aftermarket, 3%*
- *Other OEM, 8%*
- *Top 5 OEM customers after Ford, 7%*

Visteon has set targets for non-Ford business: 20% by year-end 2002; 25% in 2004; 30% in 2005.

**Visteon Sales by Region**

- *North America, 71%*
- *Europe, 16%*
- *ROW, 13%*

**Visteon Sales Total 2001 Sales: $17,843 Million**

**Visteon Sales Background**

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**Visteon Sales**

<table>
<thead>
<tr>
<th>Sales By Region</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>71%</td>
</tr>
<tr>
<td>Europe</td>
<td>16%</td>
</tr>
<tr>
<td>ROW</td>
<td>13%</td>
</tr>
</tbody>
</table>

**Visteon Sales Total 2001 Sales:** $17,843 Million

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**Visteon Sales by Product Segment**

<table>
<thead>
<tr>
<th>Sales By Product Segment</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive Operations</td>
<td>96.5%</td>
</tr>
<tr>
<td>Glass Operations</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

**Visteon Sales**

- *Total 2001 Sales: $17,843 Million*

Visteon's Electronics Sales in $ Billions

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales (in $ billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>3.5</td>
</tr>
<tr>
<td>1997</td>
<td>3.3</td>
</tr>
<tr>
<td>1998</td>
<td>2.9</td>
</tr>
<tr>
<td>1999</td>
<td>3.0</td>
</tr>
<tr>
<td>2001</td>
<td>2.4</td>
</tr>
</tbody>
</table>

1996 to 2001 Annual Growth: -7.3%

Visteon Top Electronics Customers

#1 Ford
Others, Not Ranked:
- BMW
- GM
- Honda
- Hyundai
- PSA
- Renault
- Volkswagen

Ford's Worldwide Vehicle Unit Sales by Quarter

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Sales (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001 Q1</td>
<td>1,805</td>
</tr>
<tr>
<td>2001 Q2</td>
<td>1,858</td>
</tr>
<tr>
<td>2001 Q3</td>
<td>1,513</td>
</tr>
<tr>
<td>2001 Q4</td>
<td>1,808</td>
</tr>
</tbody>
</table>

Because Ford accounts for 82% of Visteon shipments, Visteon sales are closely linked to sales of Ford vehicles.

Visteon's Stock Price Since July 2001

Reorganization Into Customer Teams

On April 4, 2001, Visteon announced that it had reorganized the company from product-focused profit and loss (P & L) groups into customer-focused business groups, which also have P & L responsibility. Organized into two business regions, North America and Europe/South America, Visteon now operates nine customer business groups: Ford; Ford Premier Automotive Group; General Motors/Fiat/Opel; Aisin O E M s; V A G / B M W / Daimler Chrysler; Renault-Nissan/PSA; South America; and others. Each group's responsibilities include marketing, sales and program management. Support functions, including manufacturing, product development, materials management and staff functions, are centralized. A s a result of the reorganization, about 950 staff jobs were lost, or about 12% of Visteon's salaried workforce. Before the reorganization, Visteon was organized into seven systems divisions, namely Powertrain Controls, Chassis, Climate Controls, Electronics, Interiors, Exteriors and Glass.

Systems and Modules

Since the late 1990s Visteon has been emphasizing its capabilities in systems and modules. According to its 2001 Annual Report, Visteon's mission is to "increase shareholder value by delivering systems solutions that help our customers exceed their goals... to distinguish Visteon as the supplier... of choice."

Since it became independent from Ford, Visteon has picked up only a modest...
That problem can be overcome if the old business increasingly less profitable. R&D

tems, he said. “Some of our customers think. ... Not all customers have bought into the fact that modules are critical.”

module and system sourcing certainly has not moved as far or as fast as many of us thought. ... N ot all customers have bought into the fact that modules are critical.”

Visteon is working on a cockpit system for future N issan truck and sport utility vehicles that will be produced in Europe and in the States. The cockpit system includes the cross-car beam, instrument cluster, instrument panel with integrated airbag system, wiring harness, console, climate systems and steering column. Visteon will be the cockpit and climate control integrator for these vehicles.

In 2000, Visteon first produced DVD family-entertainment systems for factory installation in three MY 2002 mid-sized SUVs made by GM: the Trailblazer, Bravada and G M C Envoy. More recently, Visteon became the first supplier in the world to offer factory-installed family (rear-seat) entertainment systems in vehicles equipped with moon roofs. Such systems went into production in 2002 for Chrysler Group minivans including the Caravan.

However, it is not certain that Visteon will be able to leverage its system and module capabilities to win a lot more business soon. Demand for systems and modules has been sluggish. W hile some carmakers around the world have out-sourced some modules and some systems, most of them are in a wait-and-see mode as they figure out if such sourcing really does save money and improve their product offering. Labor unions, which are well-entrenched at carmakers in Europe and N orth A merica, are dead-set against module and system outsourcing because it usually means fewer union jobs at the carmakers.

According to John Kill, Visteon’s vice president of product development, “M odule and system sourcing certainly has not moved as far or as fast as many of us thought. ... N ot all customers have bought into the fact that modules are critical.” T he same goes for climate control systems, he said. “Some of our customers want to retain that capability in-house.”

Less R & D

New products are particularly important in the automotive industry where constant pressure to reduce prices makes old business increasingly less profitable. That problem can be overcome if the supplier is able to create a steady stream of new and innovative products that it can sell at premium prices. New product development will prove more difficult now that Visteon has been forced by price reductions and negative profits to lower its investment in research and development from roughly 6% of sales in 2001, down to 5% or less in 2002.

To compensate, Visteon has been trying over the last year to balance its technology portfolio so it can be certain that it focuses only on potential markets that will surely grow. T he company now plans to emphasize and support these fast-growing technologies: audio, chassis (including all-wheel drive), cockpits, climate control, engine air induction and engine fuel delivery. A audio, cockpit and climate control systems require significant electronics expertise, which will be provided by Visteon’s in-house electronics product development organization.

R & D investment is being focused most heavily on products and technologies that can be commercialized in three years or less. Further, said Mr. Kill, “Visteon has been looking for more efficient ways to deliver new products, for example by using improved test methods, relying on computer-aided engineering tools (C A E) and generally making more efficient use of our resources. W e believe we are now able to deliver more than we have in the past while spending less money.”

According to Mr. Kill, the company has been extremely active in the development and utilization of C A E tools: “W e are probably furthest along in the industry in being able to model passenger comfort so we can design and develop HVAC systems more efficiently. W e have parametric models that allow us to design and develop cockpits where we can change certain parameters. A s we change things, all the corresponding and mating parts change automatically, so you can immediately see how everything gets modified.”

Electronics

W hen T he Hansen Report last profiled Visteon in February 1998, Visteon’s main electronics products were audio components and systems, the EEC-V electronics engine control module, instrument clusters and driver information systems and various body-electronics modules. Today the top electronics products are powertrain controls, audio components and instrument clusters, which together account for about one-half of electronics sales. A ccording to Visteon, in 2001 it shipped roughly $750 million in powertrain electronics, roughly $500 million worth of audio equipment and about $360 million worth of instrument clusters.

In addition, while Visteon no longer makes complete engine control modules like the Ford EEC-V , it does make some other engine controllers: for fuel delivery systems and for air induction systems. A ccording to Visteon, it has a 13.6% share of the global market for powertrain and engine control modules. A nother key electronics product for the company is climate control systems.

In August 2000, Visteon launched a telematics and multimedia business unit that would focus on navigation, communications, entertainment, in-car computing and audio system operations. B ut now Visteon says it has put telematics and navigation on the back burner. John Kill: “W e invested heavily in telematics and navigation and that investment has not panned out. T he difficult thing was to reach the conclusion, ‘H ey, this is not going to come along as fast as we thought,’ and scale back. ... A t the end of the day, if we don’t offer a value proposition that makes business sense for the [O EM ] customer and the consumer, these technologies, even though they may be extremely advanced and provocative, still have to make sense from a value standpoint.”

Promising Electronics Products

◆ Audio Products: A audio is Visteon’s second-largest electronics product: The company claims a 20% share of the market for radio control heads. Visteon makes everything from simple radio control heads to complete systems including the head unit, CD player, speakers, amplifier and antenna modules.

Visteon lost a huge chunk of Ford audio business recently to Delphi. In June 2000, Delphi announced that it had won a long-term supply agreement with Ford for a variety of audio systems that will be used in several future models, beginning in MY 2004.

While Visteon’s share of the audio market will undoubtedly decline over the next couple of years, Martin Thoone, director of electronics product development, believes that audio systems is Visteon’s most promising product line going forward. “We spend so much time in cars these days. The average American spends 550 hours a year in a car; Europeans spend about 275 hours per year on average. So we want to make driving pleasant.” In the future, Visteon expects to offer more DVD features, MP3 and other audio compression formats playable from DVD/CD players and from hard-drives as well as navigation integrated with the radio. Existing audio customers include Fiat, Ford, GM, Chrysler, VW, BMW and Jaguar.

◆ HD Radio: Visteon has been aggressive with its development of receivers compatible with HD (high-definition) Radio, the brand name for iBiquity Digital Corp.’s in-band-on-channel or IBOC radio. Visteon says it has already booked a development contract for an HD Radio receiver with a European carmaker operating in the States. Visteon plans to put its HD Radio into production in time for the 2005 model year.

In early December 2002, iBiquity Digital, the only provider of digital radio broadcasting technology in the U.S., announced that at least 11 stations will be broadcasting HD Radio in its top six markets by the end of 2002, namely New York, Los Angeles, Chicago, San Francisco, Miami and Seattle. A Visteon press release dated October 21, 2002 said, “all-

visteon demonstrated that commitment at the 2001 Consumer Electronics Show, where it introduced its Mach Voice Link product, which combines Visteon’s voice technology with Bluetooth. Bluetooth is a wireless data network that operates in the 2.4 GHz industrial, scientific and medical (ISM) band. Mach Voice Link enables hands-free cell phone applications where a Bluetooth-enabled phone only needs to be present in the vehicle, not wired to the vehicle through a docking station. Rather than talking into the cell phone, drivers simply speak into a microphone mounted to the vehicle interior near the driver’s mouth. Visteon’s voice technology can also be used to activate audio, climate control, navigation and cell phone features. Visteon’s voice-activation system recognizes over 100 basic commands. Visteon is already shipping Bluetooth-enabled products to BMW for a 2003 model year application.◆
Consumers Still Want Safety Features

J.D. Power and Associates’ (Westlake Village, CA) 2002 Feature Contenting Report (FCR), released last fall, indicates that safety-related enhancements continue to top the list of features consumers want on their new vehicles. A BS has ranked number-one on the annual survey for five of the last six years. For the 2002 FCR, J.D. Power and Associates surveyed 117,800 buyers of new (MY 02 and 03) vehicles, after 90 days of ownership, about what features they would definitely or probably want on their next vehicle. The percentages listed below are the number of consumers surveyed who “definitely or probably” want the feature. When asked which new or emerging technology-based features they would buy and the price they would be willing to pay, consumers again favored safety-related features, particularly airbags. Despite the problems of glare and increased fuel consumption, 63% of consumers indicated they would pay $75 for daytime running lights—the same percentage that wanted auto-dimming rearview mirrors. For more information, contact J.D. Power: Telephone 1-805-418-8000; www.jdpa.com.

Vehicle Theft On the Rise In Japan

As the number of car thefts in Japan grows, expectations for sales of car antitheft products also grows. Until recently, car theft hasn’t been a big problem in Japan.

<table>
<thead>
<tr>
<th>Security System Penetration Rates in Japan (in percent)</th>
<th>2002 - '08</th>
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</thead>
<tbody>
<tr>
<td>Keyless Entry</td>
<td>56</td>
</tr>
<tr>
<td>Alarms</td>
<td>15</td>
</tr>
<tr>
<td>Immobilizers</td>
<td>33</td>
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</table>

Data: Strategy Analytics, Milton Keynes, England

TRW... Continued from page 1

significantly increases from its present low value. When the stock market improves, Blackstone could bring TRW A utomotive public through an IPO. Both Blackstone and Northrop Grumman have indicated that they want to lessen their equity positions in TRW A utomotive even before the deal closes. Blackstone presently is slated to own 80% of the business, Northrop Grumman, 20%. The deal values TRW A utomotive at $4.425 billion, a ratio of just 45% of TRW A utomotive’s 2002 sales of about $10.5 billion. That’s an especially low valuation considering TRW’s electronics capabilities. In 1999, TRW A utomotive shipped $1.6 billion in electronics.

Blackstone will run the acquisition strictly by the numbers, making moves that improve the company’s valuation, not necessarily its long-term viability. TRW A utomotive suppliers will be heavily pressured to reduce prices. Employees will have to keep their heads down, because Blackstone will likely lay off a significant number of them to bring costs down. Indeed, Blackstone and TRW A utomotive have indicated that going forward, the company will sharply focus on automotive safety systems, specifically chassis systems (brakes and steering) and occupant safety systems (seat belts and airbags). In 2001, TRW’s Chassis Systems division had sales of $5.6 billion; the Occupant Safety Systems division had $3.0 billion in sales. Non-core business including engineered fasteners, body control systems and engine components accounted for $1.5 billion in sales. These businesses could be polished up for sale and spun off.

While TRW has been able to pay down a significant percentage of the funds it borrowed to finance its 1999 acquisition of LucasVarity, the company is still laden with debt. TRW Inc.’s September 30, 2002 balance sheet shows negative working capital of $75 million. Working capital, vitally needed to keep the company operating, equals current assets minus current liabilities. On December 17, 2002, Moody’s Investors Service downgraded TRW’s debt rating to Baa3, which means that loans made to TRW are considered adequately secured, but with speculative characteristics.

From 1999 to 2002, TRW A utomotive sales have declined 2.5% per year. 1999 sales were $11,328 million; $10,995 million in 2000; $10,111 million in 2001, and according to a company estimate, 2002 sales will come in at around $10.5 billion.

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