

# The Ratchet Strap Alarm System



Drivers can't "keep on truckin'" if they can't keep their cargo secure. Unfortunately, drivers often have no idea their load has become unsecured until it's too late. One new product concept, though, can prevent these frequent problems before they occur.

The patent pending *Ratchet Strap Alarm System* is an alarm device for use with straps that secure cargo within or upon a transporting vessel. Should the security of the cargo be at risk, be it from loosened straps or even theft, the *Ratchet Strap Alarm System* can alert the vehicle driver through a secondary component, thus preventing an accident before it happens.

A base alarm includes a radio frequency (RF) transmitter within a durable housing that connects to a cargo-securing strap. Should the tension of that strap become reduced an internal spring will retract activating a transmitter, along with audio and visual alarms.

The RF transmitter would broadcast to a matching receiver that's contained within a fob. This fob also contains audio and visual alarms to alert its holding driver.

Should the tension of cargo-securing straps be unknowingly reduced, placing that cargo and its transporting vehicle at risk – or even should that cargo be subject to theft – the *Ratchet Strap Alarm System* would immediately activate its audio and visual alarms, both at the point of the cargo and at the remote location of the driver. Immediate alert before the fact, and prevention of damage and risk that could otherwise follow that fact.

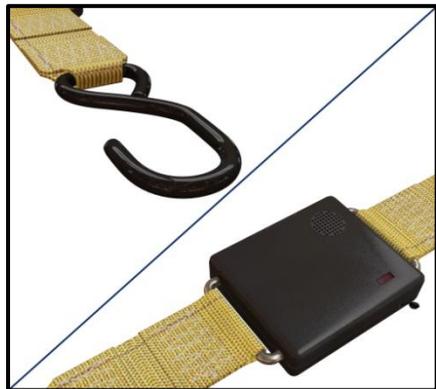
Commercial vehicle accidents caused by unsecured cargo remain high, and theft of cargo is dramatically increasing, as well.

The new *Ratchet Strap Alarm System*, which your company is invited to include in its product line, can help control these problems. Please read on for more information.

# Features & Benefits Of *The Ratchet Strap Alarm System*

## *Features*

- Alarm device of durable housing:
  - High-tension string within housing
  - Audio alarm
  - RF transmitter
  - Nodule connecting alarm to RF transmitter
  - External brackets on opposite external endpoints of alarm device housing
  - Internal shaft extending from 1 external bracket and attaching to high-tension spring
  - External lighting piece
- Straps:
  - Woven nylon straps of 2" width
  - Attached to external brackets from alarm device housing
  - Of 7" length from 1 bracket and 4" from the other bracket
  - Stainless steel S-hooks of ½" diameter attached to endpoint of each strap
- RF receiver within durable housing:
  - RF receiver in broadcast alignment with RF transmitter
  - External lighting
  - External audio speaker
  - Contained in fob format



## ***Benefits***

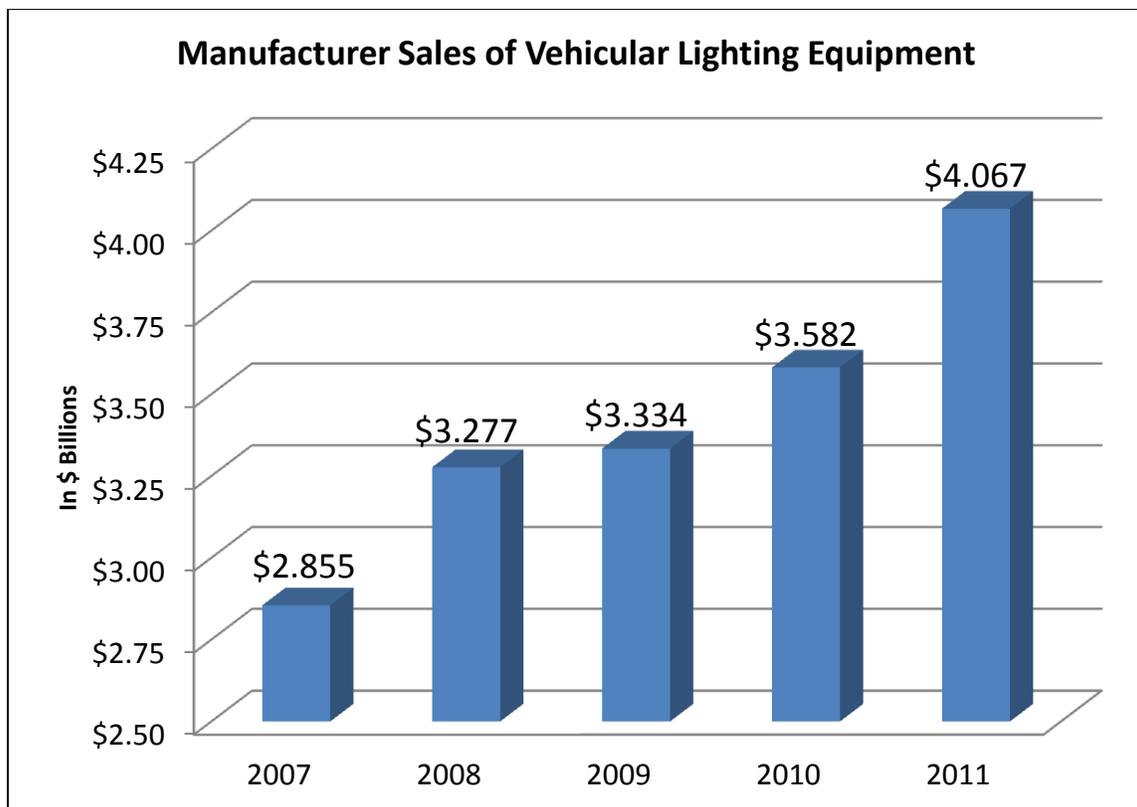
- Aids securement of cargo upon transporting vehicles.
- Alerts users when securement is at risk.
- Provides alert visually and audibly.
- Provides alert at direct point of cargo and at remote point of driver/operator.
- Warns users when cargo is at risk of damage.
- Prevents cargo damage before it happens.
- Eliminates costs of cargo damage.
- Prevents risk to operation of transporting vehicle.
- Prevents common cause of vehicular accidents to transporting vehicles.
- Prevents damage to other vehicles and objects in vicinity of transporting vehicles.
- Prevents risks to the wellbeing of drivers and others in the vicinity of transporting vehicles.
- Prevents cargo theft from vehicles.
- Addresses a common and still-growing problem affecting commerce.
- Can appeal to very large consumer groups.

Manufacturing Industry  
Of  
***The Ratchet Strap Alarm System***

SIC	Industry	Companies	Annual Sales
3647	Vehicular Lighting Equipment	169	\$4.067 billion
3669	Communications Equipment, NEC	497	\$4.705 billion
3799	Transportation Equipment, NEC	875	\$25.659 billion

The *Ratchet Strap Alarm System* can be presented to companies in these three industries. SIC 3669 includes companies that manufacture alarms and security control equipment. SIC 3799 can be presented with the concept, as well, as it makes cargo trailers that can use the device, and SIC 3647 includes manufacturers of lighting and other electronic equipment used on commercial vehicles.

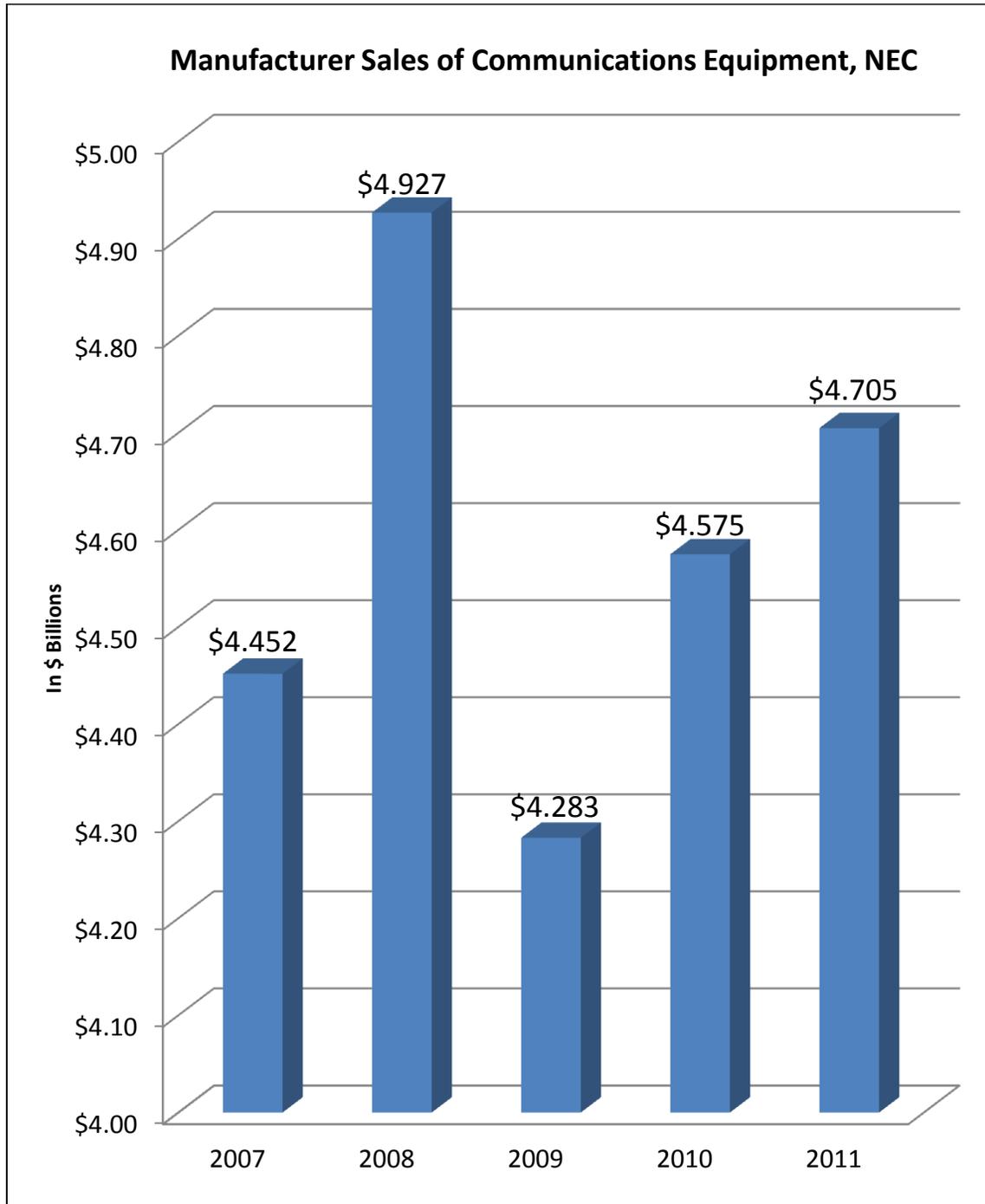
The following chart shows the most recently available sales history of the Vehicular Lighting Equipment manufacturing industry:



**Source:** U.S. Bureau of the Census

Annual sales of this industry grew an impressive 42.45 percent in the last reported five-year period.

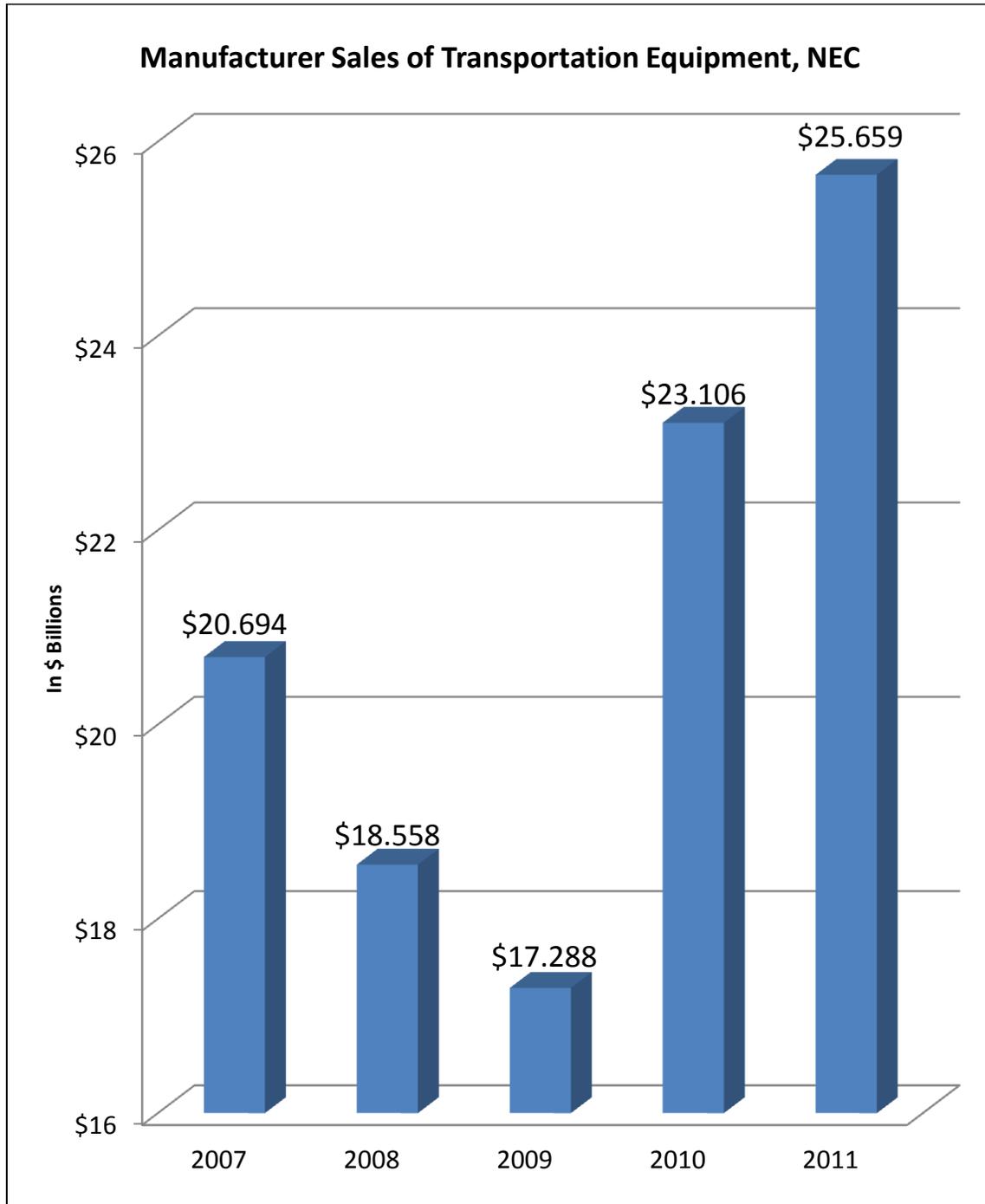
The following chart shows the most recently recorded sales history of the Communications Equipment, NEC manufacturing industry:



**Source:** U.S. Bureau of the Census

Annual sales of this industry are rebounding, and show a 5.68 percent gain in first year/last year comparison of 2007 and 2011.

The following chart shows the most recently recorded sales history of the Transportation Equipment, NEC manufacturing industry:



Source: U.S. Bureau of the Census

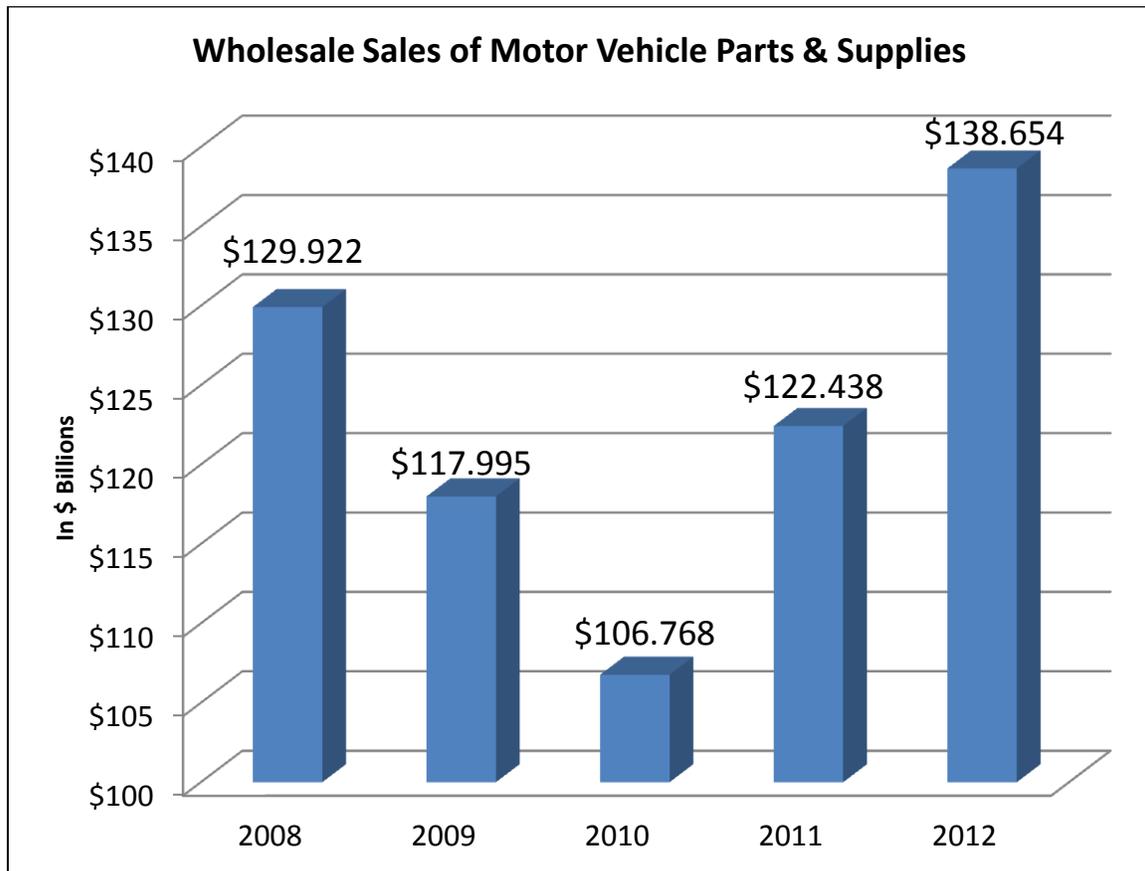
Annual sales of this industry grew 23.99 percent in the last-reported five-year period.

Wholesale Industry  
Of  
***The Ratchet Strap Alarm System***

SIC	Industry	Companies	Annual Sales
5013	Motor Vehicle Parts & Supplies	32,141	\$138.654 billion
5084	Industrial Machinery & Equipment	46,910	\$225.022 billion
5088	Transportation Equipment & Supplies	5,580	\$37.242 billion

The *Ratchet Strap Alarm System* can be distributed with other vehicle accessories by companies in SIC 5013. It can also be carried by wholesalers that provide other products to transportation companies.

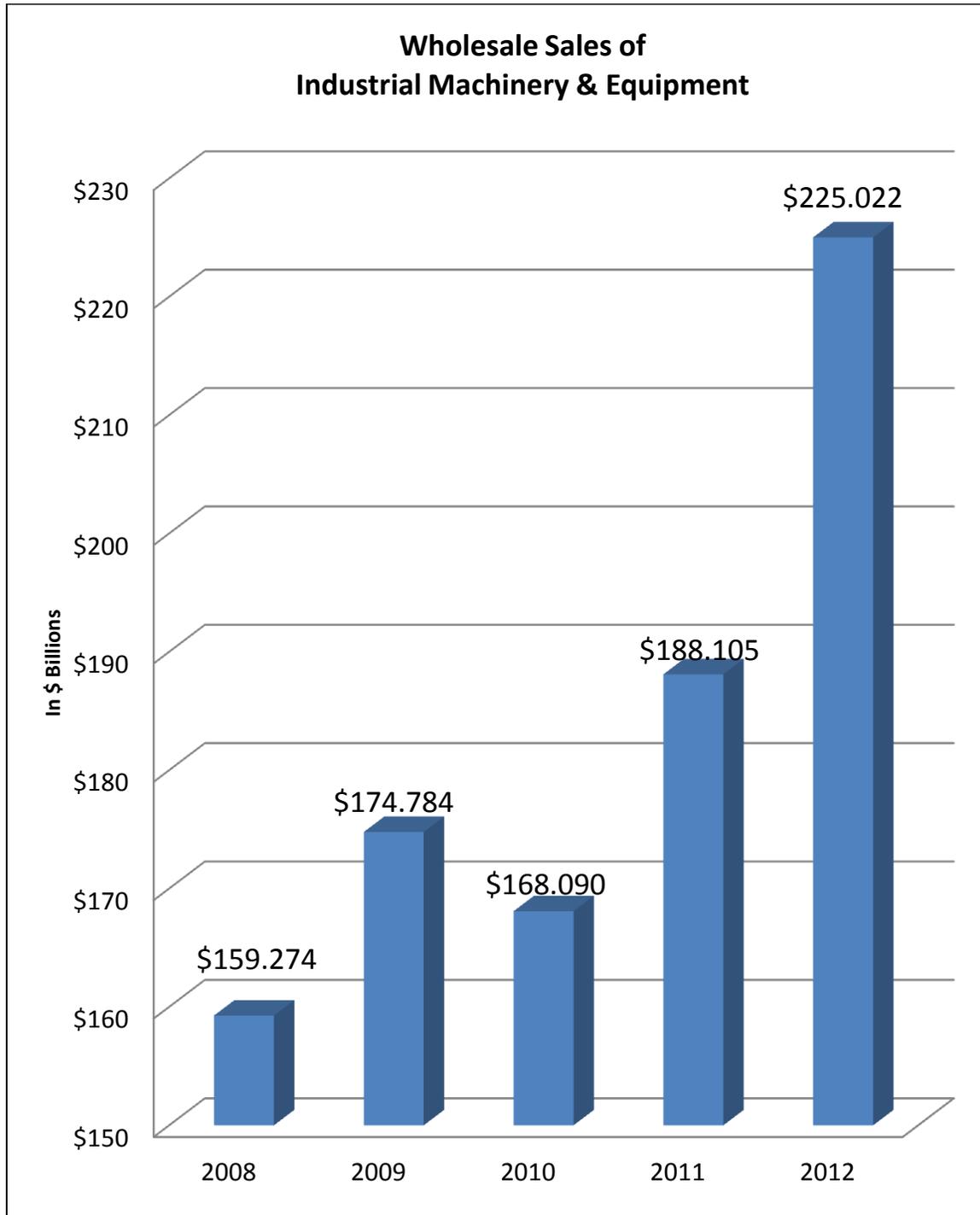
The following chart shows the recent sales history of the Motor Vehicle Parts & Supplies merchant wholesale industry:



**Source:** U.S. Bureau of the Census

This merchant wholesale industry has made sizable rebound, growing over 13 percent in the last year alone; its first year/last year growth is 6.72 percent.

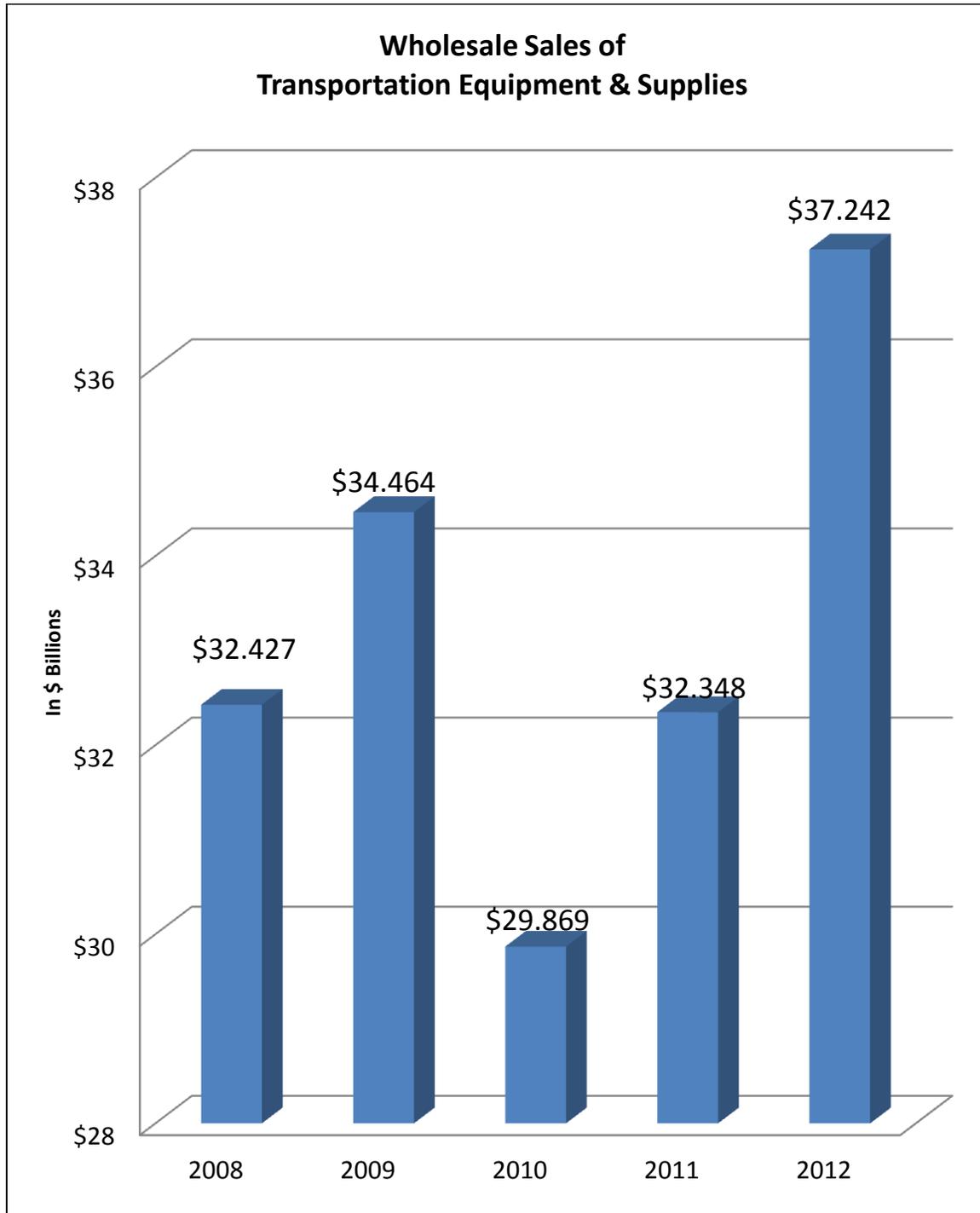
The following chart shows the most recent sales history of the Industrial Machinery & Equipment merchant wholesale industry:



Source: U.S. Bureau of the Census

Annual sales of this merchant wholesale industry grew an impressive 41.28 percent in the last five years.

The following chart shows the most recent sales history of the Transportation Equipment & Supplies merchant wholesale industry:



**Source:** U.S. Bureau of the Census

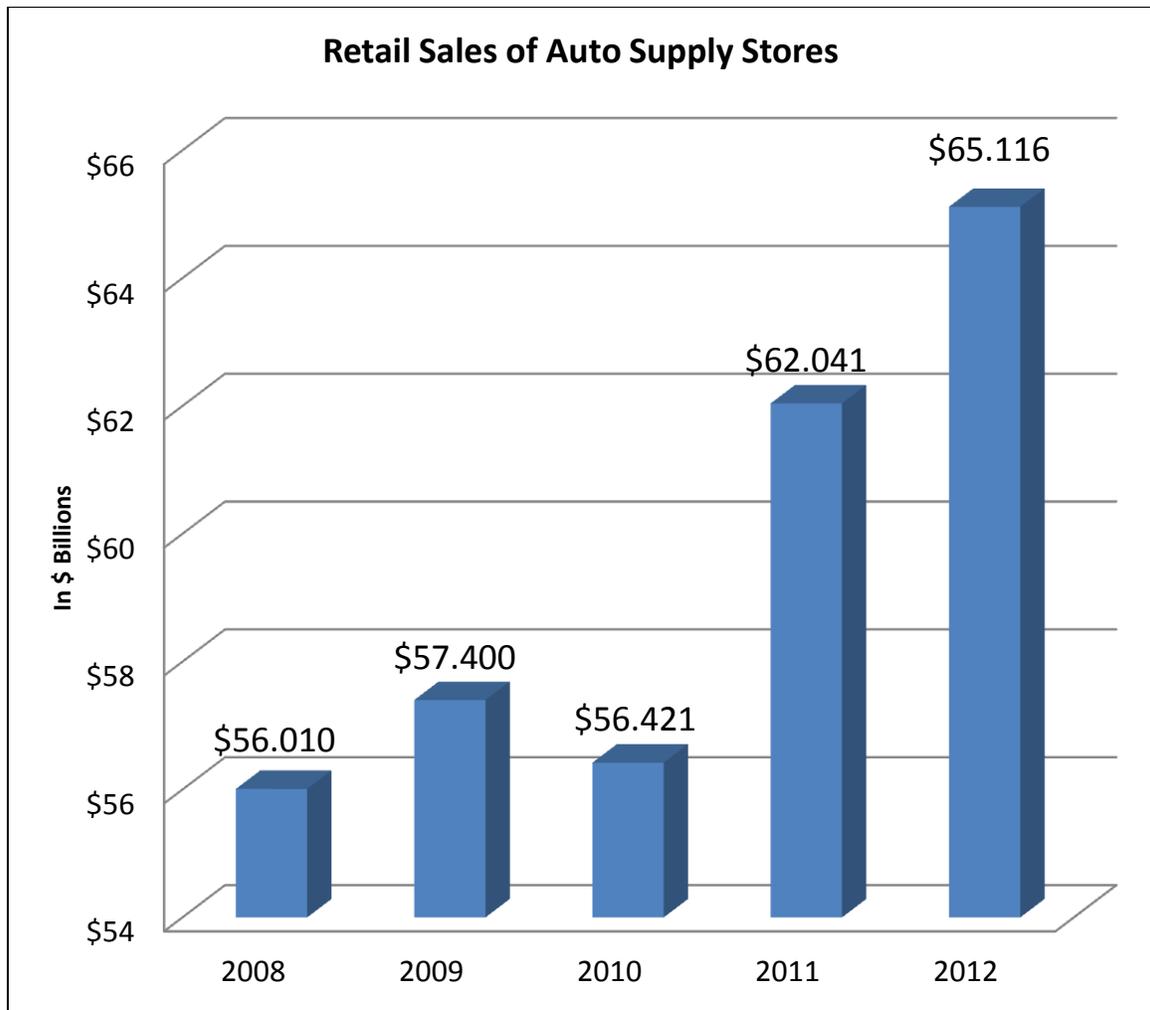
Annual sales of this merchant wholesale industry rebounded by 14.84 percent in first year/last year comparison of this five-year period.

Retail Industry  
Of  
***The Ratchet Strap Alarm System***

SIC	Industry	Companies	Annual Sales
5531	Auto Supply Stores	58,849	\$65.116 billion

Small trucking companies and independent contractors could purchase the *Ratchet Strap Alarm System* directly from applicable retailers. Its presence in this retail industry could extend its use to other consumer realms, too, such as boat owners, motorcycle owners, off-roaders, and RV users.

The following chart shows the recently reported sales history of Auto Supply Stores:



Source: U.S. Bureau of the Census

Annual sales of Auto Supply Stores grew 16.26 between 2008 and 2012.

Potential Need  
For  
***The Ratchet Strap Alarm System***

**The Ratchet Strap Alarm System protects cargo from common damages.**

- Truck drivers have to worry about a lot more than just shifting gears. It's actually shifting cargo that's a top concern in the field.
- Cargo is secured within and upon trailers by straps to keep it from falling and breaking due to the basic principles of motion and gravity. The straps themselves become subject to that same force, though, and which increases should there be erratic movement by the truck, even due to common road conditions. When that force increases, the tension those straps can provide progressively decreases.
- The results? Cargo straps fail. Cargo spills within or off the trailer, and doesn't reach its intended destination.
- It can be a lot worse than just damaged cargo and lost sales. The basic physics that cause the straps to fail, followed by the spill of cargo in the trailer, can also cause the trailer to shift, slide and even flip. This can cause damage to the trailer-hosting truck and even to structures and other vehicles in the area.
- Is this a frequent problem? Securing straps that become unsecured are responsible for one out of every six tractor trailer accidents in the United States. That's over 22,000 incidents every year of damaged products, damaged vehicles, damaged property, and all too often damaged lives.
- If basic physics can explain this problem, then another basic science needs to address it: electronics. A driver can't see when a securing strap loosens, but electronics could let that driver know right when it happens.
- The *Ratchet Strap Alarm System* includes a RF transmitter that attaches to a high-tension spring. Should the tension of this spring be reduced, which would allow an internal shaft to make current contact with a nodule, the RF transmitter would broadcast to its receiver. This receiver can then activate an audio speaker and lighting, all of which are contained within a fob that the using driver can keep



right in the cab, and which would let that using driver know immediately of the circumstance and its risks.

- The *Ratchet Strap Alarm System* ensures that strap tension won't be reduced without notifying the driver, who can then ensure that the cargo is re-secured. A basic solution to an all-too common problem.

### **The *Ratchet Strap Alarm System* protects cargo from common theft.**

- When most Americans consider the concepts of commercial theft, they think of shoplifting, a liquor store hold-up, or at worst a bank robbery.
- Often these crimes, though, begin much farther back in the supply chain and with much worse losses, too. The theft usually starts before products ever get to the stores, and by cargo stolen from the trucks carrying those products in mass quantity.
- It happens about three times every day in the U.S., and for total annual damages of about \$30 billion. Trucks carrying electronics, food items and clothing are the top targets, but practically all products – even cosmetics and baby formula – are regularly targeted.
- They're not like those other commercial thefts in other ways, too. There's no security guard to sneak past, no theft detector to walk through, no security cameras – just a single lock that seals the doors on the trailer is all that a thief needs to overcome. The only other necessary factor to complete the heist is for the truck to stop.
- Those trucks must stop, of course. Semis can roll for 11 hours per shift, and drivers must take a 10-hour break before hitting the road again, which leaves a wide-open window for theft. Even local deliveries aren't safe; in fact, cargo theft occurs most commonly within four hours and only 200 miles from the point the driver first loaded the truck.
- Just like the *Ratchet Strap Alarm System* can alert drivers of cargo that might be coming loose during transport, it can let them know of any that might be coming loose while at rest, too.
- Once securing straps are reduced in original set tension by any means, its alarm and lighting are quickly activated.
- Because the fob hosting that alarm and lighting can be positioned by the driver at any location, even on his or her own person, the *Ratchet Strap Alarm System* can immediately alert of the risk at hand.

**The *Ratchet Strap Alarm System* provides this theft protection  
at a time of increased need.**

- If three times a day for \$30 billion in loss doesn't sound bad enough, then brace yourself: the rate of cargo theft has increased by 50 percent in 2012, and is reported to grow by an additional 20 percent last year.
- It's not just the trucking companies and their clients who have to pay for it, though. Such theft is credited for 20 percent of the product costs consumers have to pay nowadays.
- The dramatic increase is the result of dramatic improvement of sorts; instead of just thugs looking for loot, cargo theft is now reported to be a prime practice of organized crime. The stolen goods are then commonly sold at sneaky websites or even shipped overseas.
- The *Ratchet Strap Alarm System* can provide a quick, easy and inexpensive method to address this growing problem.

**Sources:** National Highway Traffic Safety Administration, "Large-Truck Crash Causation Study," Univ. of Michigan Transportation Research Institute, Federal Motor Carrier Safety Administration, FreightWatch, and National Insurance Crime Bureau.

Potential Consumer Base  
For  
***The Ratchet Strap Alarm System***

The *Ratchet Strap Alarm System* can be used by all companies that ship goods, as well as those that rent trucks for use by consumers.

<b>SIC</b>	<b>Industry</b>	<b>Companies</b>	<b>Annual Sales</b>
4212	Local Trucking (without storage)	67,613	\$51.385 billion
4213	Non-Local Trucking	49,083	\$105.764 billion
4214	Local Trucking (with storage)	7,144	\$4.221 billion
4215	Courier Services	3,746	\$22.809 billion
4731	Arrangement & Transportation of Freight & Cargo	20,313	\$16.393 billion
5013	Motor Vehicle Parts & Supplies	32,141	\$105.308 billion
5020	Furniture & Home Furnishing	22,359	\$82.708 billion
5031	Lumber, Plywood & Millwork	15,543	\$74.066 billion
5032	Brick, Stone and Related Materials	10,442	\$14.366 billion
5033	Roofing, Siding & Insulation Materials	3,277	\$17.655 billion
5046	Commercial Equipment, NEC	8,521	\$15.915 billion
5065	Electronic Parts & Equipment	24,645	\$217.147 billion
5072	Hardware	8,473	\$34.027 billion
5074	Plumbing & Heating Equipment	11,680	\$39.754 billion
5075	Air-Conditioning Equipment	7,645	\$20.063 billion
5078	Refrigeration Equipment	3,074	\$5.136 billion
5082	Construction & Mining Equipment	8,905	\$44.726 billion
5083	Farm Machinery & Equipment	12,320	\$41.097 billion
5084	Industrial Machinery & Equipment	46,910	\$131.685 billion
5113	Industrial & Personal Service Paper	6,215	\$45.394 billion
5162	Plastic Materials, Basic Forms & Shapes	3,240	\$35.193 billion
5169	Chemicals & Allied Products	13,084	\$93.730 billion
5191	Farm Supplies	17,013	\$33.63 billion
5211	Building Materials Dealers	38,194	\$155.139 billion
5311	Department Stores	19,051	\$259.921 billion
5712	Furniture Stores	51,706	\$39.135 billion
5963	Direct Selling Establishments	12,369	\$15.176 billion
7359	Equipment Rental & Leasing	18,193	\$19.920 billion
7513	Truck Rental	4,936	\$10.082 billion
<b>TOTALS</b>		<b>547,835</b>	<b>\$1.752 trillion</b>

Reaching only five percent of these companies would still result in the establishment of approximately 27,500 customers for the *Ratchet Strap Alarm System*.

A potential for individual unit sales of the device could also be examined.

Number of Commercial Delivery Trucks in the U.S.	15.5 million
Number of Tractor Trailers	2 million

If the *Ratchet Strap Alarm System* were to be used with only five percent of all commercial delivery trucks, and only one unit per truck, this would amount to sales of 775,000 units. If it were to reach 10 percent of the most-applicable class of tractor trailers, and for only one unit each, this would still result in sales of 200,000 devices.

Potential consumers could also be identified based on individual need, rather than the needs of a company. For example, independent drivers and owner/operators could be targeted as consumers of the *Ratchet Strap Alarm System*.

Independent Drivers and Owners/Operators	3.5 million
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By reaching only 10 percent of this consumer group of established need, the *Ratchet Strap Alarm System* could realize minimum sales of 350,000 units.

**Sources:** U.S. Bureau of the Census, U.S. Bureau of Transportation Statistics and *Trucking Info*

Cost and Price Estimates  
For  
***The Ratchet Strap Alarm System***

All estimates for the possible costs and prices of a new, yet-to-be-manufactured item are very difficult to estimate. This difficulty is due to potential variations in the costs of initial materials, the rate of production for the item, and its initial demand.

Moreover, research on estimated costs and prices is very restricted so as to avoid improper disclosure of the *Ratchet Strap Alarm System* while still in these beginning stages.

In order to provide further detailed information for consideration, however, such estimates should be offered. The “Best Estimate” enclosed within is primarily based upon pricing of similar products (when possible) by this applicable manufacturing category, current cost of necessary materials, and average value added for the applicable manufacturing industry.

These estimates are subject to change and are enclosed only to offer a preliminary means of evaluation of product value for the *Ratchet Strap Alarm System*. Of course only its manufacturer could properly determine the costs and prices.

The estimates on potential costs and prices for the *Ratchet Strap Alarm System* could be:

	<b>Low Range</b>	<b>Mid Range</b>	<b>High Range</b>
<b>Materials Cost</b>	\$3.25	\$4.60	\$6.30
<b>Manufacturer’s Cost</b>	\$10.60	\$13.55	\$16.20
<b>Wholesale Price</b>	\$22.80	\$27.80	\$33.95
<b>Supplier’s Price</b>	\$31.50	\$38.40	\$46.85
<b>Retail Price (MSRP)</b>	\$42.79	\$52.20	\$63.69

**REMINDER:** It is extremely important to remember that the above costs and prices are only estimates. Actual costs and prices can only be determined by manufacturing companies with a good understanding of their own production capabilities within this venue.