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FOCUS ON ESC

(ELECTRONIC STABILITY CONTROL)

ELECTRONIC STABILITY CONTROL (ESC)

by Glen Nicholson

Electronic Stability Control ("ESC") is the most important auto safety innovation since the seatbelt. ESC has been around for a dozen years and it is available from all auto makers in more than one third of all vehicle models sold in Canada. Yet ESC is in few vehicles on our roads and is unknown to most Canadians. Moreover, many safety stakeholders have done little or nothing to promote widespread ESC use.

WHAT IS ESC?

ESC is an active safety device that helps prevent vehicle crashes by detecting and correcting loss of steering control (skidding) by applying one brake (and sometimes reducing engine power). Conceived by Mercedes in 1959, ESC stayed on the drawing board until 1995, when cars were being driven through a "Moose Test," swerving around an imaginary animal on the road. During the Moose Test, a journalist jerked the steering wheel violently and rolled a Mercedes car. However, a Trabant (an East German economy car) navigated the Moose Test without incident.

Reporters were amused, **but Mercedes was not.** Mercedes recalled 130,000 cars and installed ESC for the first time in production cars. By 1998 Mercedes enjoyed a 21% reduction in driver related crashes and by 2002, that figure reached 42%. Other auto makers took notice and started installing ESC in high-end cars.

ESC reacts much faster than humans, applying the brake in 1/25th of a second, even if the driver's foot is still on the gas pedal. **ESC often corrects skids without the driver's knowledge.** When crashes are unavoidable, ESC helps vehicles crash safer. Skidding sideways into an object exposes heads and torsos to deadly crushing injuries. **ESC helps vehicles crash frontally so passive safety devices such as the bumpers, seat belts, front air bags, and head restraints work properly.**

ESC cannot overcome the laws of physics. However, ESC gives drivers a second chance. ESC works on dry, wet, icy, and gravel roads. ESC helps motorists avoid wildlife and unexpected road hazards. ESC helps keep vehicles on the road, in their lanes, and under control. ESC is most effective in reducing loss of control crashes that cause serious injury or death. An ESC indicator light tells the driver when the system is activated, thus warning drivers that they have just lost control and should slow down.

WHAT MAKES ESC IMPORTANT?

Dr. Claes Tingvall, an ESC pioneer, describes the road transport system as "...one of the largest health catastrophes ever seen in the history of mankind." The World Health Organization says vehicle crashes are the leading cause of death among young people aged 2 - 33. Dr. David Bowering, Chief Medical Health Officer for Northern British Columbia says road crashes cause 20% of direct health care costs and the economic and social costs of road crashes in Canada are $25 billion a year. According to Transport Canada, a staggering 2,923 people died on Canadian highways in 2005. Worldwide, crashes kill some 3,000 people daily and the cost to the world's economy is estimated at $600 billion annually.

Passive safety devices like seatbelts, airbags, and child seats help people survive crashes. However, the safest vehicle is the one that does not crash. ESC helps prevent crashes. ESC is the second-most-effective auto safety device, ranking right after seatbelts in the numbers of lives it would save. Research by the US Insurance Institute of Highway Safety (IIHS) reports that ESC would prevent:

- 40% of single vehicle crashes;
- 43% of fatal crashes; and
- 77-80% of fatal rollovers.

ESC is profoundly effective in preventing rollovers. While accounting for only 3% of crashes , rollovers cause 28% of road fatalities. Rollovers usually result from "tripping" sideways over uneven surfaces such as curbs or shoulders. By maintaining forward direction, ESC prevents most rollovers. A recent University of Cologne study shows ESC to be extremely cost effective in reducing fatalities and serious injuries. ESC costs manufacturers only $111 per vehicle.

Unfortunately, some manufacturers make ESC needlessly expensive for consumers by bundling it with luxury options or offering it only on high-end models. However at least one brand (Volkswagen) offers ESC in all its cars for the retail price of $450.

ESC will easily pay for itself and pay additional dividends by:

- reducing crash and insurance losses;
- reducing the cost of our the health care system (especially costly emergency facilities);
- reducing the demands for workers compensation and strengthening our labour force;
- reducing delays in our court system; and
- reducing the environmental cost of repairing and recycling damaged vehicles.

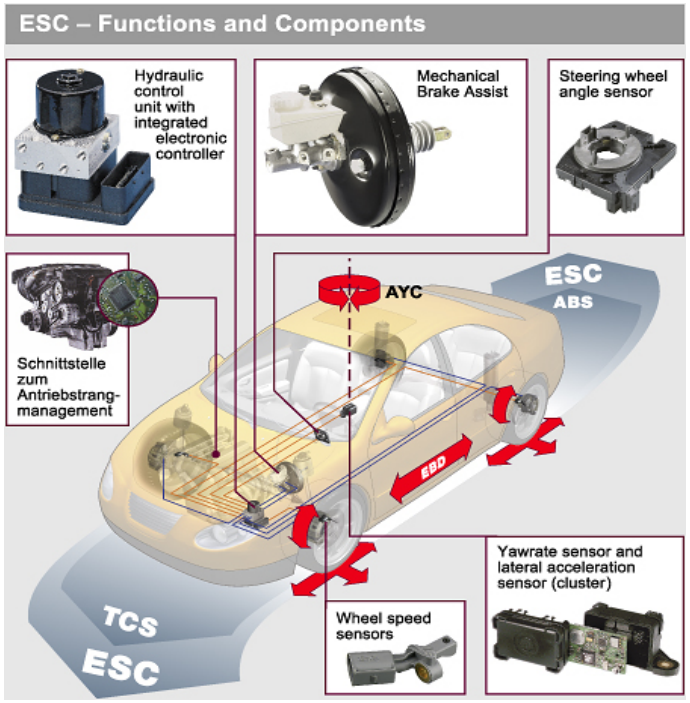

Image Courtesy of Continental Teves

WHAT ARE THE STAKEHOLDERS DOING?

Everyone will benefit by ESC. However, Lee Iacocca correctly stated that "Safety doesn't sell." ESC has been available for a dozen years, yet few have considered its profound importance. No one escapes responsibility for raising awareness of ESC.

Auto Suppliers

Mercedes gets credit for being first out of the gate. Hyundai wins the award for the most prominent ESC advertising in Canada. Volkswagen makes ESC affordable in all its models. Several high end marques such as Audi, Lexus, and Volvo make ESC standard. Other auto makers are scrambling to install ESC because SUV's are notorious for rollovers. Unfortunately, Japanese companies such as

Toyota and Honda currently bundle ESC with pricey six cylinder models, so it is unavailable in the Corolla, Matrix, Civic, or 4 cylinder Camry and Accord.

Most auto makers are do a very poor job of educating their sales staff and few are telling the Canadian public about ESC. Advertising generally pitches style over safety, and ads promoting safety typically show airbags and other passive devices that work after the crash. Many auto sales people downplay ESC because they want to sell the non-ESC vehicles in stock.

Growing public awareness of ESC is starting to have an effect on auto makers, especially in Europe. Several companies such as Ford, GM, and Toyota plan to have ESC in all their passenger vehicles in a few years. Currently some 200 models (representing about one third of all models) in Canada have optional or standard ESC.

Suppliers to the auto industry such as Advics, Bosch, Continental, Delphi, and TRW profit by selling ESC to auto makers; they also seem sincere about the importance of ESC. In this respect, Bill Kozyra, US CEO of Continental Teves is an unsung hero.

Governments

When it comes to ESC, the term "political leader" in Canada is an oxymoron. **Dozens of requests calling on Federal and Provincial governments to promote ESC have resulted in nothing more than finger-pointing.** For example, BC Premier Campbell says responsibility for ESC falls on Transport Canada. BC Public Safety Minister John Les (who is responsible for the Insurance Corporation of BC) says he will wait for the United States to make ESC mandatory. Health Canada's consumer product safety division defines hazardous products to exclude motor vehicles and Health Ministers point to Transport Canada.

Federal Transport Minister Lawrence Cannon, who is clearly responsible for ESC, is ignoring it, leaving it to a tiny, underfunded group within Transport Canada to solicit support from industry and safety organizations. Several Federal opposition critics and one back-bencher support ESC but, to date, their efforts have not achieved any media attention.

In stark contrast, the Swedish Road Administration is bullish on ESC. By raising public awareness, the Swedish government boosted ESC purchases in new vehicles from 15% to 69% in under two years. Now, more than 93% of new cars in Sweden are purchased with ESC. Denmark and Germany have similar high rates of ESC use.

The Australian New Car Assessment Program (ANCAP) chairman Lauchlan McIntosh finds that there is a compelling body of evidence showing the substantial benefits of ESC. "It's time for a national cooperative partnership of governments, manufacturers and consumers to agree urgently a timetable and a methodology for an accelerated uptake across Australia's entire car and truck vehicle fleet," Mr McIntosh said. "A program similar to the 'Choose ESC' campaign promoted by the European Commission should be implemented by the Federal and State Governments now." Victoria's chief coroner Graeme Johnstone called on all car manufacturers and importers in Australia to make ESC standard, calling it "technology we must have."

The US National Highway Traffic Safety Administration (NHTSA) jumped out of their chairs when they saw the impressive results of ESC studies around the world. NHTSA fast-tracked a new regulation making ESC mandatory in all cars and light trucks by 2012 and phasing in the rule starting next year.

NHTSA head, Nicole Nason, said in a speech to the United Nations, "You are all familiar with the expression time is money. We know that in the area of vehicle safety, time is also lives. This is particularly true for a high benefit technology like ESC. The faster we act, the more lives we can save." She called on the UN to implement a Global Technical Regulation standardizing ESC worldwide.

Unfortunately, rapid action by the US has been an excuse for some Canadian "leaders" such as Minister John Les to sit back and wait on the assumption that Canada will follow the US lead. However, there is no guarantee that we will do so. There is some evidence than Canada may already be a dumping ground for cars without ESC. Significantly more US than Canadian models now have ESC.

The Chancellor or Germany recently endorsed ESC. However, Canadian Prime Minister Stephen Harper replied, "You may be assured that your comments have been carefully reviewed. A copy of your correspondence has been forwarded to the Honourable Lawrence Cannon, Minister of Transport. I am certain that the Minister will appreciate being made aware of your views and will want to give them every consideration."

Insurers

The Canadian insurance industry is doing virtually nothing about ESC. Auto insurers ought to be enthusiastic about ESC. Early birds could gain a competitive advantage and win market share by discounting premiums for owners of ESC-equipped vehicles. They could win moral support by progressively promoting ESC. They could also profit by reducing insured risks.

Canadian insurers typically offer premium discounts for anti-theft devices. Yet no insurers offer discounts for ESC. In fact, the Insurance Corporation of British Columbia (ICBC) had not even heard of ESC until the author told them about it last year. Even though it would cost nothing, ICBC adamantly refuses to tell customers about ESC in insurance renewal notices.

Canadian Direct Insurance refuses to promote ESC and refuses to correct an error on its website declaring anti-lock braking systems (ABS) to be the most significant safety development since the seatbelt. (In truth, ABS brakes have not significantly reduced crashes.)

The Insurance Bureau of Canada (IBC) provides crash loss rating information to help auto insurers set premiums. IBC recently laid off its only automotive engineer while advertising to promote the image of the insurance industry. Because IBC has not been issuing crash loss data showing the positive effects of ESC, Canadian insurers are currently overcharging motorists who buy optional ESC and undercharging those who do not.

In contrast, the US Insurance Institute for Highway Safety (IIHS) has taken the lead by conducting some of the most important and impressive ESC studies. The results have been widely circulated and are published, with videos, on the IIHS web site.

Media

The automotive press has written extensively on ESC, calling it the greatest safety innovation since the seatbelt and making car buffs well aware of it. **However, the mainstream press has largely ignored ESC.** Like Lee Iaccoca, automakers, politicians, and insurers, the press follows the market, waiting for the public to discover and demand information on ESC.

Every Canadian soldier killed in Afghanistan made national headlines and many Canadians know the exact body count. CBC has a special web page devoted to the military dead. Yet in the same time period, the deaths of some 14,000 Canadians on our highways have gone largely un-noticed. Joseph Stalin was right when he said, "One death is a tragedy; a million is a statistic."

Media attention affects political action. For example, in BC, a playful tiger recently killed its owner by swiping at her flowing skirt and slashing an artery. The media widely reported the event. The tiger was taken from its cage and slaughtered for autopsy to try to discover what caused the tiger to behave like a feline. BC Cabinet Minister Pat Bell gained media coverage by announcing that he would bring in legislation curbing exotic pets. Yet Minister Bell refuses to promote awareness of ESC.

Safety Organizations

Safety organizations have a checkered response to ESC. Many are uninformed. Most are doing little to raise public awareness. The Canadian Automobile Association (CAA) proclaims, "The safety of Canadian motorists has always been a top priority for CAA." However, CAA and most of its member clubs only recently learned about ESC. CAA's policy statement promotes seat belts, air bags, and child car seats but not ESC; CAA plans to update it. BCAA and CAA-Quebec have now published several excellent articles on ESC and BCAA plans to update its Traffic Safety Foundation web site to include ESC. BCAA's insurance division (like other insurers) does not offer ESC information or discounts to its customers.

Following requests from the author, ICBC, Transport Canada, and the Wildlife Collision Prevention Program now have ESC information on their websites. However, very few consumers view such obscure web pages before buying vehicles. ICBC actively promotes anti-theft devices and has advertising campaigns about seat belts and tethering dogs in pickup trucks, but refuses to endorse ESC.

Transport Canada has studied ESC, including a poll showing that ESC awareness is extremely low in Canada. This month, Transport Canada is holding its second meeting to invite ESC support from road safety organizations and industry. However, Transport Canada has not announced any law in Canada like the US regulation making ESC mandatory.

Workers Compensation Boards have taken no action on ESC, saying that they are confined to enforcing existing regulations. They generally disclaim responsibility for workers who crash while driving to and from work because they are not injured on the job site.

The RCMP runs Canada Road Safety Week each May with the stated objective to raise awareness of safe driving and Vision 2010, whose goal is "to make Canada's roads the safest in the world." However, Vision 2010 is expected to fail, in part because it will not take advantage of ESC. The RCMP's National Traffic Coordinator says the RCMP's role is enforcement and refuses to endorse ESC because it is a "consumer product." Ironically, the RCMP endorses other consumer products such as seat belts, winter tires, and anti-lock brakes.

While coroners in Australia have promoted ESC as a tool for preventing fatalities, coroners in Canada are ignoring ESC.

ESC changed the way Consumers Union rates vehicles; they added ESC as a rating factor. In his lead editorial for 2007, the editor of Consumer Reports magazine declared, "ESC is the most important advance in auto safety since the safety belt. ESC can help keep a vehicle out of an accident and could save more than 10,000 lives a year [in the US]. We applaud NHTSA for taking the first step."

Canada Safety Council, Canadian Council of Motor Transport Administrators, BC Safety Council, BC Forest Safety Council, Canadian Automobile Association -Quebec, BC Automobile Association, Consumers Union, Road Health Coalition, and now **Canadian Association of Road Safety Professionals** have published articles promoting awareness of ESC. Unfortunately, most of these articles are circulated to small audiences through "in house" newsletters.

Arguably, the most important promotion of ESC emanates from the Federation International de l'Automobile (FIA). Its chairman, Max Mosely (a retired Formula One racecar driver) decided to raise awareness of ESC through a campaign called CHOOSE ESC! The official launch in Rome in May attracted delegates from Europe, Australia and North America. In his opening speech, Mr. Mosely noted that the ESC campaign in Europe has fallen behind the United States (because of the new US law mandating ESC) even though ESC was invented in Europe. Viviane Reding, the keynote speaker declared, "Time is short. Each new car

that is sold without ESC is a lost opportunity to save lives and reduce suffering."

WHAT SHOULD WE DO?

Clearly, there is a lot of talk about ESC among auto buffs and stakeholders. However, ESC awareness has not penetrated the consciousness of the average Canadian consumer, who thinks auto safety means crashing with air bags. Until consumers understand crash avoidance technology, or until the law changes, auto dealers will continue to sell vehicles without ESC that will still be on our highways 15-25 years in the future.

Responsibility for ESC starts with each and every one of us. You are safer with ESC in your car. You are also safer with ESC in other cars. You need to demand ESC. You can tell friends and family about ESC.

However, you can anticipate resistance. Many people think they are such good drivers that they don't need ESC. However, to perform like ESC, the driver would need four feet, four brake pedals, and a super-human reaction times. Some people don't want a computer controlling their car. However, computers are already controlling hundreds of functions in our cars.

One will also encounter the red herring that safety starts with driver behaviour. This is true. The first driver behaviour should be to choose a vehicle with ESC.

Claes Tingvall, the Chairman of the European New Car Assessment Program (EuroNCAP) says it is wrong to blame the victim. In his Vision Zero statement, Dr. Tingvall says, "...the road transport system and its stakeholders have been given the task of providing the citizen with mobility but have at the same time unintentionally generated one of the largest health catastrophes ever seen in the history of mankind. In a moral and legal sense, there has always been a citizen to blame."

The fact is that good drivers make human mistakes. Careful drivers encounter unexpected hazards such as wildlife or other vehicles out of control. Some drivers have diminished skills due to fatigue, age, or inexperience. ESC, like other safety equipment, gives all drivers a second chance to avoid or survive a crash.

Responsibility for ESC should not be left solely to Transport Canada. It is, first and foremost, a health issue, and ESC should be a major tool in reducing the adverse effects of road crashes on our health and health care system. As well, governments, bureaucrats, industries, and safety organizations involved with labour, workers compensation, auto insurance, police, the courts, and the environment should all take advantage of ESC as an opportunity to save lives and money and prevent debilitating injuries. The obvious steps are as follows:

- Promote awareness of ESC through media releases, the internet, direct mail, and advertising.
- Create incentives through insurance premium discounts and sales tax reductions.
- Mandate ESC by law.

In the future, we will wonder how we drove without ESC!

REFERENCES AND LINKS

Videos demonstrating ESC in action are available on Youtube or at these web sites:

http://www.whatcar.com/news-article.aspx?NA=219916
http://www.iihs.org/research/topics/esc.html
http://abcnews.go.com/Video/playerIndex?id=2431526
http://www.chooseesc.eu/en/media/movies/movies.htm

ESC is the generic name for Electronic Stability Control but it is easily confused with other features such as ABS or traction control that are not the same. Wikipedia and NHTSA have published extensive information on ESC and they list various different trade names of ESC so you know how to correctly ask for ESC:

http://en.wikipedia.org/wiki/Stability_control
http://www.safercar.gov/esc/Index.htm

The IIHS lists vehicle models sold in the US with ESC. http://www.iihs.org/ratings/esc/esc.aspx

The "CHOOSE ESC! " website is a rich source of information about the FIA campaign to raise awareness of ESC. http://www.chooseesc.eu/

IIHS, NHTSA, and Transport Canada publish ESC information on their websites.

http://www.iihs.org/research/topics/esc.html
http://www.safercar.gov/esc/Index.htm
http://www.tc.gc.ca/roadsafety/tp/tp14651/vs200701/menu.htm

Informed For Life ranks vehicles for safety, giving extra marks for ESC. http://www.informedforlife.org/

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