AEM
Association of Equipment Manufacturers

Canada Office
123 Slater Street, Suite 700
Ottawa, Ontario K1P 5H2

aem.org
aem@aem.org
613.566.4568

October 1, 2024

Standing Senate Committee on Banking,
Commerce and the Economy
The Senate of Canada
Ottawa, Ontario
K1A 0A4

Via email: banc@sen.parl.gc.ca

Dear Honourable Committee Members,

I am writing on behalf of the Association of Equipment Manufacturers (AEM) with respect to your study on the "right to repair" (RTR) Bill C-244, *An Act to amend the Copyright Act (diagnosis, maintenance and repair)*, and on Bill C-294, *An Act to amend the Copyright Act (interoperability)*.

AEM is the North America-based international trade group representing off-road equipment manufacturers and suppliers with more than 1,000 member companies and more than 200 product lines in the agriculture, mining, forestry, and construction-related industry sectors worldwide. The equipment manufacturing industry in Canada supports more than 152,000 workers and contributes $41 billion a year to the national economy.

AEM would like to draw your attention to the consultation on a "right to repair" framework that the Government of Canada (GoC) has undertaken for home appliances and consumer electronics, which includes a separate engagement on farm equipment, since as the Government's consultation document points out, farm equipment has "distinct considerations related to this product category of repairability." AEM supports this process of industry-engagement undertaken by officials at Innovation, Science, and Economic Development Canada and Agriculture and Agri-Food Canada, which is necessarily targeted in nature given the complexity of the issue that crosses federal and provincial jurisdiction, has international trade repercussions, and safety and environmental concerns. AEM is actively engaged in these consultations, which have only just begun.

To that end, AEM is deeply concerned by the indiscriminate approach to "right to repair" being undertaken through Bill C-244. Not all sectors have the same repairability, durability, and interoperability issues. In discussing legislation on "right to repair," the Hon. Senator Colin Deacon noted in debate that "the reality is that a number of things have to happen in other areas of government in order to ensure that there are no unintended consequences from this action." AEM is in full agreement. In its original form, Bill C-244 actually violated international trade agreements in its attempt to legitimize third-party hacking devices to break into equipment software for "repair," although this provision was removed at committee after industry engagement. Amidst an auto-theft crisis in Canada, the last thing that is needed is for a bill that would have *expanded* hacking devices. Using a law of general application—crosscutting from small electronics to medical devices to off-road equipment and more—could lead to significant risks. Legislation on such a complex topic should have the benefit of government consultation in advance of its tabling. We therefore strongly recommend that your committee proceed no further on the deeply flawed Bill C-244, so that the government consultations—targeted in nature—can reach their conclusions.

Current Landscape for Repair

AEM member companies support an owner's ability to repair their own equipment. Furthermore, this equipment is durable and built to last (often for decades) and to be efficiently remanufactured or recycled at end-of-life, not to end up in a landfill. It simply is not in the same category as small consumer products such as home appliances and consumer electronics.

It is in the manufacturer and dealer's best interests to get equipment up and running as quickly as possible when in need of maintenance or repair. Farmers have understandable anxiety over delays, particularly during time-sensitive planting or harvesting seasons. No one wants delays. To this end, AEM member companies provide equipment owners with access to on-board diagnostic tools via in-cab display or wireless interface, electronic diagnostic tools, technical manuals, and training. Manufacturers make available the manuals, product guides, fault code guides (as distinct from *source code*), and product service information that enables owners' ability to repair equipment. Most manufacturers have mobile device apps that provide access to diagnostics, parts catalogues and allow the owner to order parts for their equipment at their local dealer.

Examples of Self-Repair Availability for Farm Machinery (in alphabetical order by company)

- AGCO: "AGCO supports farmers and the right to repair their equipment. This includes the need to provide customers with information and tools to maintain, diagnose, and repair their equipment. AGCO created a customer diagnostic tool, Tech Connect Diagnostics-CV (TCD-CV). TCD-CV is a module in the Tech Connect Suite that can be made available to customers to assist in maintaining, diagnosing, and repairing their equipment."
- CLAAS: "While CLAAS takes pride in its FIRST CLAAS SERVICE delivered through its dealers, they realize that customers also may need the ability to make repairs on their own terms. The company has supported this for years and offers an app for mobile devices under its CLAAS Connect portal that puts machine-specific owner manuals and technical resources directly in their customers' hands." Through our dealer network in Canada and the US, CLAAS is committed to provide the technical manuals, repair manuals, diagnostic equipment, and tools customers need to repair their equipment.
- CNH Industrial: "We are committed to providing you with the tools you need to avoid downtime by repairing your own Case IH and New Holland equipment when possible. Consider this your stop for all the self-repair resources needed to get the job done yourself. On these pages, you have access to our Customer Electronic Service Tool (EST), technical manuals, and so much more."
- John Deere: "We know uptime is critically important to you. It's also important to us and our dealers. From Do-It-Yourself tractor repairs to connected dealer support, we're committed to keeping your machines up and running when you need them most. We also know you want to service and repair your own equipment in your own shop, and on your own time. That's why Deere makes it easy for you to work on your machine's parts and systems."
- Kubota: "Through our network of over 1,250 dealers, Kubota makes available the shop tools, parts, guides and manuals to owners who choose to work directly on their machines."\

Repairability and Skilled Labour

Industry has been sounding the alarm on the shortage of skilled manufacturing labour in Canada across sectors. There is a lack of skilled technicians to repair equipment of high value and higher complexity than the machinery of our parents and grandparents' time. There is an estimated shortage of 3,000 technicians across Canada needed to service the increasingly digitally-integrated technology in the off-road sector that has brought such significant productivity, safety, and emission-reduction benefits, and of which the GoC is encouraging further adoption.

While it is within provincial jurisdiction, it should also be noted that there is a cost to providing repair tools, manuals, and service, which applies not just to any farmer looking to repair their own equipment, but also to dealers or third-party repair shops. Dealers in particular make large investments in training skilled technicians who can more quickly and efficiently identify and repair a problem because they specialize in the same equipment and benefit from the efficiencies that come from repairing similar brand equipment day in and day out. Off-road equipment owners can be rightly proud of the expertise they gain, and Canada should be seeking to foster more of this talent. While a number of tools are available to farmers, AEM member companies report that uptake has been low, likely due to the complexity of modern machinery and the need for additional skilled technicians (whether at dealers, third-party repair shops, or the farmers themselves). This low uptake may be one of the likely factors in concern around self-repair.

To further enable repairability, AEM recommends that the GoC recognize the widely available self-repair tools for farm equipment, and provide funding for programs to train more skilled technicians. On “right to repair,” education and training – not regulation/legislation – is the path forward to ensure that safety, security, and environmental benefits are maintained.

Risks of Modification or Unskilled Repair

The Equipment Dealers Association found among respondents that 33% had modified equipment come into their dealership in the last 24 months. This included modifications that impaired or disabled government-mandated emissions controls and safety features. There are also cases where this illegal tampering resulted in injury, which wrongfully resulted in dealers and manufacturers themselves being sued.

AEM is concerned that permitting the circumvention of technological protection measures and enabling unskilled repair to equipment through “right to repair” initiatives under consideration will wrongfully put manufacturers at risk of legal action. When manufacturers make even small changes to software programming, technical specialists undertake weeks of testing to ensure that there are no unintended impacts on the millions of lines of software code embedded in equipment. This is vital to ensure the safety and good operation of equipment.

When dealers find that equipment bought back from a farmer (or returned from a lease) has been modified, the dealer becomes legally responsible for bringing it back to compliance with government regulations. Yet, no provisions in the discussion of “right to repair” have been made with regard to this legal and financial burden.

Unfettered access to the software code that governs on-board technology on equipment will exacerbate a real risk of enabling modifications that may:

- Pose unnecessary and avoidable safety risks,
- Circumvent emissions regulations,
- Expose a cyber security risk for increasingly digitally-connected equipment,
- Create unknown liability issues for the individuals modifying the code, but also for subsequent owners of modified equipment,
- Undermine manufacturers' intellectual property rights,
- Void or otherwise violate warranty provisions, and
- Detract from resale/trade-in value of modified equipment.

One example of unintended consequences is related to Canada’s emissions regulations. Diesel exhaust fluid or “DEF” is part of the technological advancements made to reduce harmful environmental emissions from engines and are part of modern “Tier 4” engines (see figure 1). It is a requirement on manufacturers put in place by

government agencies. All the information for farmers to correctly replace DEF themselves is available for self-repair. However, a fault code may sometimes be triggered because the procedure was not followed correctly, and the software believes that tampering to override legally-required environmental emissions controls was taking place. Given that DEF "delete kits" are even offered publicly by a variety of third-party shops, in their words to "delete these pollution-control components," this is a problem that should concern the government. Yet, the government's laws remain unenforced, and manufacturers are being blamed for restrictions that the government itself requires to meet regulations.

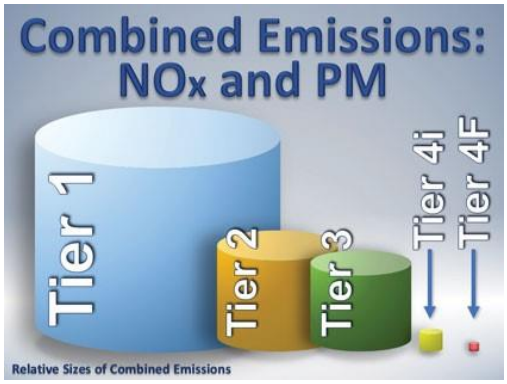

Figure 1 – Tier 4 engines drastically reduce emissions of particulate matter and nitrogen oxide compared to earlier engine types. Enabling the hacking of equipment such as through DEF delete kits puts environmental goals at risk and is a major risk of the increased access to source code promoted by Bill C-244.

In the *National Cyber Threat Assessment 2023-24*, Canada's own Communications Security Establishment has warned that the widespread adoption of 5G technology like precision agriculture, of which AEM member companies are at the forefront, means that "more sectors and services will become vulnerable to cyber threat activity. This includes espionage, fraud, extortion and sabotage." This is a time for government to be working *with* original equipment manufacturers to safeguard technological protection measures, not enabling them to be bypassed.

Interoperability

AEM believes that it is beneficial to see representatives from competing companies come together, collaborate, and address industry-wide challenges. We put this belief into action through our leadership role in the Agricultural Industry Electronics Foundation (AEF), an organization of over 200 member companies working to improve cross-manufacturer compatibility of electronic and electric components in agricultural equipment, and to establish transparency about compatibility issues. AEF is a global foundation initiated in 2008 by agricultural technology companies AGCO, CLAAS, CNH Industrial, Grimme, John Deere, Kverneland Group, and Poettinger, as well as associations VDMA, and AEM. Canadian members include Buhler, MacDon and Olds College.

AEF's Plugfest is an event which has taken place twice yearly in North America and Europe for 12 years, and includes participants from Canada. Plugfest provides companies the opportunity to test compatibility of agriculture equipment, attachments, implements, and displays from different manufacturers. These events are also an ideal example of manufacturers and related industry stakeholders working cooperatively on the issue of interoperability for the benefit of the farmer customer.

At Plugfest, companies test the compatibility of their products to proactively identify and remove glitches likely to impact the functionality of their products to avoid future customer disruptions. This collaborative industry approach has led to interoperability breakthroughs including farmers no longer needing multiple monitors in their cabs, the

development of tractor implement management (TIM) technology allowing the implement to control the tractor for optimized performance, and work on high speed ISOBUS and wireless infield communication technologies.

AEM member companies produce equipment of high value and complexity. Conforming to regulations such as health, safety and emissions is of the utmost importance to the entire industry. It takes years of training and research to obtain specialist expertise. Allowing access to software programming code for the interoperability of machinery should only be carried out by equipment specialists.

Benefits of Modern Equipment

Through the course of discussions on "right to repair,' AEM has noted that repair is often presented in a manner more representative of mechanical equipment from 30 or 40 years ago. However, older equipment should not colour the way repair is seen with complex modern machinery used in agriculture today (see figure 2).

Example of older model farm equipment interior

Example of modern farm equipment interior

Figure 2 – Modern agricultural equipment has brought major benefits for a farmer's bottom line, and the environment. It has also brought technological complexity that distances it from the types of repairs done with proverbial elbow grease generations before.

With partner organizations in the Canadian agricultural sector, AEM released a study quantifying how widely-available precision ag technology used in agriculture improves environmental stewardship while providing economic return for farmers. Precision agriculture uses technologies to enhance sustainability through the more efficient use of critical inputs, such as land, water, fuel, fertilizer, and pesticides. Essentially, farmers who use precision agriculture tools use less to grow more.

The study was completed to highlight how policies and other technology-enabling priorities can help farmers increase these outcomes. The study explored five key environmental benefits achieved through precision agriculture technology adoption, including:

- Yield benefit through increased efficiency,
- Fertilizer utilization by more precise placement,
- Pesticide usage by more accurate application,
- Fuel savings due to less overlap and better monitoring, and
- Water savings through more accurate sensing of needs.

Significant increases in yields and further input savings can be reached as precision agriculture technologies become more widely adopted:

- Productivity has increased an estimated 4% and has the potential to further increase 7% with broader adoption.
- Precision agriculture has improved fertilizer placement efficiency by an estimated 6% and has the potential to further improve an additional 16%.
- Herbicide use has been reduced by an estimated 9% and has the potential to further decrease 16% at full adoption.
- Fossil fuel use has decreased an estimated 6% with the potential to further decrease 11%.
- Water use has decreased an estimated 7% because of current precision agriculture adoption with the potential to further decrease 18% at full adoption.

In one announcement of funding for a farmer to purchase variable rate technology for a fertilizer spreader, the federal Minister of Agriculture and Agri-Food stated that goal of the GoC is "to help the Canadian agricultural sector innovate and adopt clean technologies. This investment in the adoption of new precision agriculture technology and equipment will help to reduce the sector's greenhouse gas emissions and leverage technology to mitigate climate change." AEM member companies support this goal as well, which will reduce emissions, feed a growing global population, and improve the bottom line for farmers. In the broader discussion on RTR, then, we must ask ourselves: do we want equipment to go back to the past, so that it requires less skill to repair and does not provide modern benefits? The answer must be no.

***

In conclusion, we are hopeful that our discussions can continue to demonstrate to your Committee, along with the Government of Canada and the Canadian public the widely available repair tools available for farm equipment, and the desperate need for the training of more skilled technicians. On RTR, *education not legislation* is the path forward to ensure that safety, security, and environmental benefits are maintained.

Thank you once again for the opportunity to provide these comments. Please do not hesitate to reach out with any questions or for more information.

Sincerely,

Kip Eideberg
Senior Vice President, Government & Industry Relations
Association of Equipment Manufacturers

cc

Hon. Pamela Wallin, Chair
Hon. Tony Loffreda, Deputy Chair
Hon. Diane Bellemare
Hon. Colin Deacon
Hon. Clément Gignac
Hon. Elizabeth Marshall
Hon. Yonah Martin
Hon. Paul J. Massicotte
Hon. Raymonde Saint-Germain
Hon. Tony Varone
Hon. Hassan Yussuff