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New Joining Manual Supports Rapid Growth of Aluminum in Automotive

- *Aluminum joining manual is a technical reference discussing the range of commercially available production processes for joining aluminum components*
- *Essential tool as use of aluminum in high-volume automotive applications is expected to accelerate aggressively in the next decade*

DETROIT, Jan. 29, 2015 – The Aluminum Association today released a comprehensive manual that details the range of joining technologies used for the assembly of aluminum parts in automotive applications. Developed in collaboration with the European Aluminium Association (EAA) and the Aluminum Extruders Council (AEC), the joining manual is an essential reference for automotive designers and engineers as use of aluminum alloys in vehicle designs increases. Highlighting advancements in joining aluminum to itself and dissimilar materials, the all-new joining manual is an update to the EAA’s Aluminium Automotive Manual and is now available for download at no cost from the Aluminum Transportation Group’s (ATG) website: DriveAluminum.org.

“As aluminum shakes up the materials status quo through greater use in new vehicle construction, the new joining manual is going to be an invaluable tool to engineers and designers of lightweight vehicles,” said Tom Boney, chairman of the Aluminum Association’s Aluminum Transportation Group (ATG) and vice president and general manager of automotive for Novelis in North America. “As we enter into this new phase of multi-material vehicles, the need for advanced education on aluminum joining methods is critical.”

About the Joining Manual

Today, various technologies are used to join aluminum alloy components with other aluminum parts or with dissimilar materials. The number of joining options continues to grow in response to specific design and assembly needs. With the advancement of new, innovative joining technologies, the joining manual arms engineers and designers with a detailed technical reference that outlines the benefits, design implications and potential limitations of each method.

The 11-chapter book-length manual covers the joining of aluminum to aluminum and other common automotive materials, including steel, plastics, composites and magnesium. Contents of the aluminum joining manual include:

1. Introduction
2. Characteristics of fusion welding
3. Arc welding
4. Beam welding
5. Resistance welding
6. Brazing
7. Solid state welding
8. Mechanical joining
9. Adhesive bonding

- 10. Hybrid joining
- 11. Joining dissimilar materials

“The full potential of reducing weight with aluminum remains untapped. The new technologies outlined in the joining manual are an important enabler toward the development of future lightweight vehicles around the world,” said Gerd Götz, European Aluminium Association director general. “Europe is the leader in aluminum body applications with market share in North America rapidly increasing. In a fruitful partnership with experts from the Aluminum Association, we have developed the most comprehensive, global joining manual to date.”

The EAA’s Aluminium Automotive Manual launched in 2003 as an exhaustive technical guide focused on six major categories: applications, design, materials, products, manufacturing technologies and joining techniques. With regular updates since its debut, the arrival of the 2015 section focused on joining is timely as use of aluminum alloys in high-volume vehicles increases in the next decade. The full Aluminium Automotive Manual can be downloaded from the EAA website: www.alueurope.eu/aam

A recent survey of automakers by Ducker Worldwide found that by 2025 more than 75 percent of all new pickup trucks produced in North America will be aluminum-bodied. The study, which confirms a major breakthrough for automotive aluminum into high-volume vehicles, surveyed all major automakers and reports that every leading car manufacturer will have numerous aluminum body and closure programs. The use of aluminum sheet for vehicle bodies in North America is expected increase to 4 billion pounds during the next decade, from 200 million pounds in 2012. For the last 40 years, automakers have steadily increased their use of aluminum for its consumer and environmental benefits, including greater durability, better handling, increased safety and higher fuel efficiency, and thanks to these advantages, aluminum is poised for even greater growth ahead.

For more information, visit DriveAluminum.org or follow the ATG on Twitter: [@drivealuminum](https://twitter.com/drivealuminum).

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About the Aluminum Association

Through its Aluminum Transportation Group, the Aluminum Association communicates the benefits of aluminum in ground transportation applications to help accelerate its penetration through research programs and related outreach activities. The ATG’s mission is to serve member companies and act as a central resource for the automotive and commercial vehicle industries on aluminum issues. Members of the ATG include: Alcoa Inc., Novelis Inc., Kaiser Aluminum Corporation, Aluminum Precision Products Inc., Aleris, Rio Tinto Alcan, SAPA Extrusions North America, Hydro Aluminum Metals USA and Pennex - Metal Exchange Corporation.

About the European Aluminium Association

The European Aluminium Association, founded in 1981, represents the whole value chain of the aluminium industry in Europe, from alumina and primary production to semi-finished, end-use products and recycling. The European aluminium industry directly employs about 255,000 people and yields an annual turnover of 36.8 billion €. For information, please visit www.alueurope.eu or follow on twitter: [@AluEurope](https://twitter.com/AluEurope)

About AEC

The Aluminum Extruders Council (AEC) is an international trade association dedicated to advancing the

effective use of aluminum extrusion in North America. AEC is committed to bringing comprehensive information about extrusion's characteristics, applications, environmental benefits, design and technology to users, product designers, engineers and the academic community. Further, AEC is focused on enhancing the ability of its members to meet the emerging demands of the market through sharing knowledge and best practices.