

THE ELECTRIC SCHOOL BUS SAFETY CIRCUIT



At Thomas Built Buses, safety is at the center of everything we do—and the Saf-T-Liner® C2 Jouley® is no exception. Here are five key ways that we, and our partners at Proterra,® ensure that every Jouley is ready to move the next generation forward.



Battery
Engineering



Battery
Testing



Electric School
Bus Engineering



Electric School
Bus Testing



Electric School
Bus Training





BATTERY ENGINEERING: BUILT FOR SAFETY

Big innovations take the right partners. That's why we work with Proterra, a leading manufacturer in electric battery and drivetrain solutions, to power Jouley safely and reliably.

- **Built strong:** Jouley has two Proterra battery packs encased in lightweight, ballistic-grade aluminum to guard against weather, impacts and other extreme conditions.
- **Built smart:** Each battery pack contains more than 6,000 small, cylindrical cells. Basing a battery system on thousands of small cells adds an additional layer of resiliency and safety.
- **Key safety feature – Passive Propagation Resistance (PPR):** In the unlikely event of a battery cell thermal event, PPR is designed to detect and isolate an affected cell while protecting neighboring cells from further propagation. PPR also allows for proper heat venting, enabling a slower, more controlled release of energy in the rare case of a thermal event.



ELECTRIC SCHOOL BUS ENGINEERING: SAFE, AND SMART

We took our time developing Jouley to ensure that it's safe, driver-friendly and easy to maintain. For us, it's the only way to build an electric school bus.

- **Built on a proven foundation:** Jouley is built on the industry-leading Saf-T-Liner C2 platform that is recognized for its visibility, safety features, driver ergonomics and reinforced Saf-T-Net construction.
- **Next-generation safety technologies:** Jouley is available with a range of state-of-the-art safety features, including auto-reversing doors, Bendix Intellipark® parking brake, hill start assist and the PerimeterView® 360 camera package.
- **Safe operation and maintenance:** Color-coded wiring, automatic electrical shut-offs and fixed positioning of high-voltage wires make operating and maintaining Jouley even safer. In addition, the Thomas Built Buses' S.T.A.R.S. mounting system allows for easy seat removal and reinstallation.



ELECTRIC SCHOOL BUS TRAINING: CREATING TOMORROW'S EXPERTS

Moving toward a better, more sustainable future isn't just about building electric school buses. It's about building a network of knowledgeable, well-informed experts. That's why we work on-site with maintenance teams and dealers to ensure that all technicians are properly trained to safely maintain Jouley.

In addition to the right electric bus experts, we also have the right service locations. Our vast service network makes sure that the dedicated, personalized assistance you need is always close by.



BATTERY TESTING: SETTING THE STANDARD FOR SAFETY

Thomas Built and Proterra are at the forefront of electric school bus safety. That's because Proterra rigorously tests Jouley's batteries to ensure that they can stand up to virtually anything.

- **SAE J2929:** Jouley's Proterra batteries meet this standard that defines acceptable safety criteria for lithium-based rechargeable battery systems.
- **ISO 26262:** Proterra batteries also meet this standard, which ensures the integrity of monitoring and controlling software that protects the battery pack against the most critical hazards and failures.
- **Pushing safety even farther:** Proterra has developed even higher standards of testing to assure optimal battery pack performance and safety in a range of conditions. They routinely test how batteries stand up to impacts, vibration, submersion and extreme temperatures.



ELECTRIC SCHOOL BUS TESTING: BECAUSE EVERY MILE MATTERS

Beyond battery testing by Proterra, we have thoroughly engineered and tested Jouley for safety and performance in all types of environments.

- **Safety testing:** Jouley meets a range of industry safety tests, including collision, Colorado Rack and Kentucky Pole tests. An independent third party reviews Jouley's design for functional safety and documentation.
- **Compliance testing:** Jouley complies with EPA and CARB certifications, FMVSS/CMVSS regulatory testing as well as state- and provincial-specific testing standards.
- **Durability testing:** We are committed to regularly testing Jouley's structural durability so that the bus of the future meets your expectations for years to come.
- **Functional testing:** We conduct high-voltage and low-voltage functionality testing of steering, braking, HVAC and battery cooling systems.