

**Visualizing the world offered by the "SHOWA EERA® Gen2"  
The "Gear Pump Driven Suspension Spring Adjuster" and the "ECU  
Built-in Electronic Control Suspension" will be exhibited as a  
hands-on experience.**



What kind of world can the "SHOWA EERA® Gen2" offer to riders? Astemo has always been thinking about things like this. Technological innovations have dramatically improved the safety and comfort of motorcycles and expanded their individuality without limit. Also, with the new technology, we are able to present one of the solutions to eliminate the differences in riders' physiques.

Astemo's proprietary electronically controlled suspension system "SHOWA EERA® (Electronically Equipped Ride Adjustment) Gen2" has improved the programming and damper structure to bring out the optimum damping force characteristics to match the vehicle's character, from light motorcycles to sport motorcycles. This enabled us to give multiple different performance characteristics in the suspension of a single motorcycle, as well as making possible the detection of driving conditions in real time and the seamless adjustment of damping force accordingly to maintain high performance and increase riding safety.

An additional feature of the "SHOWA EERA®" system is "HEIGHTFLEX®," which consists of gear pump driven suspension spring adjusters mounted on the front and rear suspension units. With this function, frequent and high-speed adjustment of ride height is made possible. Additionally, when a stop is detected while running, the front and rear suspension units are automatically and smoothly retracted to lower the vehicle height and improve the footing of the rider. The new model offers riders of all sizes the enjoyment of riding a motorcycle without sacrificing the performance inherent in motorcycles and without limiting the displacement or

style.

However, Astemo's goal is not only to provide technology. Beyond providing technology, we want to provide a life with motorcycles and the joy that motorcycles bring.

The "SHOWA EERA®" increases work efficiency. The joy of traveling on motorcycles is expanded. Discover the joy of sports on motorcycles. It strengthens bonds with family and friends. You can also meet the new you. We want to support such riders around the world with Astemo's technology. That is how we are thinking.

At EICMA 2025, a video summarizing the new motorcycle experience offered by the "SHOWA EERA® Gen2" will be shown. In conjunction with this, a vehicle equipped with "gear pump driven suspension spring adjusters" for the front and rear suspension and "ECU built-in electronic control suspension" will be exhibited. In addition to experiencing the wide range of damping force adjustment, visitors will also be able to experience the benefits of the ride height adjustment mechanism raising and lowering the vehicle height and its quick operation while riding the vehicle.

#### **<Summary of SHOWA EERA® Gen2 Technology>**

- **By incorporating the control board for the variable damping force actuator into the suspension unit, a separate ECU for suspension control is eliminated. Simplified wiring and reduced weight are also made possible.**
- **Cost competitiveness is improved by incorporating a G-sensor into the control board, making the stroke sensor obsolete in the system configuration.**
- **Frequent and high-speed operation of HEIGHTFLEX®, a ride-height adjustment function, is made possible using a hydraulic gear pump + motor.**

#### **<Products and Descriptions>**

##### **■ SHOWA EERA® Gen2**

The "SHOWA EERA® Gen2" has improved variable damping force performance and reduced the number of parts by improving the structure of the sensor and the damping force control valve. These electronically controlled suspension systems can be installed in a wide range of vehicle categories, including small-displacement vehicles.

The function of a conventional stroke sensor coil is made possible using a flexible board. In addition, the suspension control ECU, which provides commands to each suspension unit, has been downsized and integrated into the suspension unit. This enables installation in small-displacement vehicles, where mounting space has been limited, as well as electronic control of the front and rear suspension units on their own.

Also, by installing a G sensor (accelerometer) in the compact ECU integrated with the suspension, it is now possible to measure the vehicle body condition in a simple manner even if the stroke sensor is eliminated. This has enabled electronic control of suspension even in small-displacement vehicles such as light motorcycles and scooters, where cost competitiveness is required.

The new valve structure reduces the number of parts and provides a wider variable damping force range than the first generation "SHOWA EERA®." From its wide variable range, it can be adapted to larger and sportier vehicles that require more precise control by changing the program and using the new type of stroke sensor. Thus, application to a wide range of vehicle categories is made possible.

The SHOWA EERA® Gen2 system for front forks extends the same concept and technology used for the rear suspension to the front forks. A system has been created by mounting compact ECUs that also accommodate a G-sensors on the fork top area and the axle holder area.

The SHOWA EERA® Gen2, an evolution of the electronically controlled suspension system, has changed the program and damper structure to bring out the optimum damping force characteristics to match the vehicle's character, from light motorcycles to sport motorcycles. This will not only improve the driving performance of vehicles equipped with the "SHOWA EERA® Gen2," but also contribute to improved safety.

### **■SHOWA EERA® HEIGHTFLEX® Vehicle Height Adjustment Mechanism**

The "SHOWA EERA® HEIGHTFLEX®" vehicle height adjustment mechanism uses a stroke sensor located in the suspension to detect the vehicle height while running, and maintains the optimum vehicle height. This system automatically lowers the vehicle height when it detects that the vehicle is coming to a stop while in motion, thereby improving footing comfort for the rider.

The "gear pump driven suspension spring adjuster" for rear suspension inherits the functions of HEIGHTFLEX® with the addition of a hydraulic pump unit. The operating time for returning the ride height, which was lowered in anticipation of a stop, to the running height after resuming driving is approximately 6 seconds, which is about half the operating time of the system presented at the 2022 EICMA, which used a hydraulic pump converted from an ABS modulator.

For the 2024 EICMA, the "gear pump driven suspension spring adjuster" was integrated into the front fork. The benefits of the HEIGHTFLEX® function can be fully felt even when only the rear suspension is installed, but the benefits of the HEIGHTFLEX® function can be maximized by equipping both the front and rear suspensions with the fast-acting ride-height adjustment function.

This system can be installed on inverted SFF (Separate Function Front Fork) with an inner tube diameter of 43 mm or more. It can also be mounted in conjunction with a "SHOWA EERA® Gen2" unit using electronic control technology for front forks.

In addition to the gear pump type, the new lineup also includes the self-level pump type, which has a proven track record of use in production vehicles, and the previously announced ABS modulator type, allowing customers to select HEIGHTFLEX® functions and performance to match the characteristics of the vehicle in which it will be installed.

The greatest advantage of gear pump drive is its ability to make frequent and high-speed adjustments. If the rider wants to improve their footing, they need to force the suspension to move up and down every time they stop at a traffic light. In the city, where the distance between traffic lights is short, its operation time needs to be faster. Of course, to achieve frequent and high-speed operation, it was also necessary to increase durability.

This mechanism is based on the oil pump technology that has been proven in our large outboard motor tilt and power tilt and trim mechanisms. The mechanism was modified to the optimal size for hydraulic spring adjusters for motorcycle suspensions while maintaining high efficiency, and the materials and shapes of the seals were redesigned to improve durability. Thus, the durability of the pump itself has been increased.

Unlike rear suspension where sensors and gear pump units could be mounted on the outside of the shock unit, front fork mounting required all items to be coaxially located with the outer tubes, and to achieve this, all items had to be packaged in a compact manner. There were also numerous restrictions due to the structure of the front fork, where the upper end face is

clamped to the top bridge, and access to the interior can only be made via that upper end face.

HEIGHTFLEX® is achieved through the accumulation of numerous proprietary technologies. This has stimulated a need for footing improvement mechanisms, and we feel that our idea is gaining ground in the market. This "gear pump driven suspension spring adjuster" is a technology that further advances HEIGHTFLEX® and provides additional benefits to vehicle manufacturers and users.

\*Information contained in this Technical Information is current as of November 3, 2025, but may be subject to change without prior notice.