

Intelligent Air System



Version 1.0
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Intelligent Air System

What is it?

The Fifth Generation Cascadia features an upgrade to system air handling called the **Intelligent Air System**. This system manages the air used to operate key parts of the truck, like the **service brakes, park brakes, and trailer brake air supply**. It also supports other systems such as the transmission clutch and shifting, cab suspension, auxiliary air supply, and seat controls.

What makes this system “intelligent” is how it **replaces many of the traditional air-powered parts** (like air compressors, valves, and air lines) with electronic components. Behind the dash, air lines are replaced with **electronic connections** which allow for advanced features like the **electronic park brake with Rollaway Mitigation** (which automatically sets the park brake if the driver forgets) and the **electronic trailer brake**.

By centralizing components and reducing the number of air lines, the system is better at distributing air efficiently and minimizing air leaks. The system is powered by an **electronic air processing unit (eAPU)**, along with a **Bendix air dryer** and **electronically controlled pneumatic (ECP)** components. These work together electronically to clean, dry, store, and send air where it is needed.

In older trucks, the air system relied on many separate air lines to connect directly to each component. The new **eAPU combines everything in one place**, which means fewer air lines, better leak detection, and easier maintenance. It also automatically removes moisture from the airlines, so drivers no longer need to manually drain the air tanks during post-trip inspections.

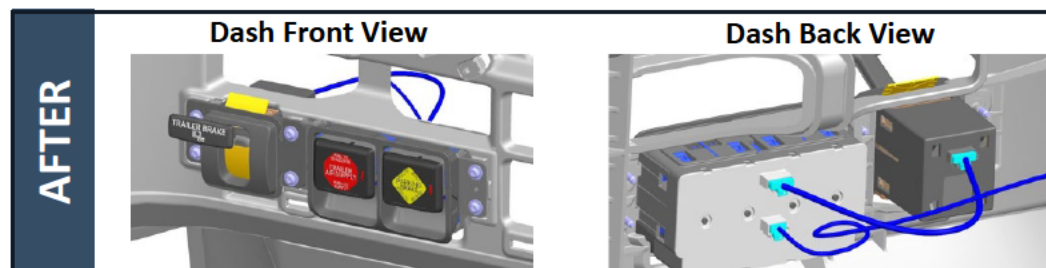
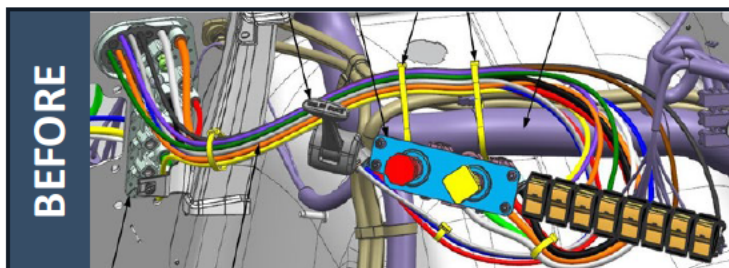
The system also uses **straight threaded o-rings**, which create **tighter seals** between parts - like between an airline and an air tank. This reduces air leaks and keeps the system running longer without needing to refill the air tanks. In fact, the system can **hold air for up to 72 hours**, which means less idling time to rebuild air pressure.

Why is it important?

The **Intelligent Air System** improves the driving experience and operational efficiency. By removing multiple air lines and components from behind the dash, it creates a quieter, more comfortable cab environment that **drivers will notice** immediately.

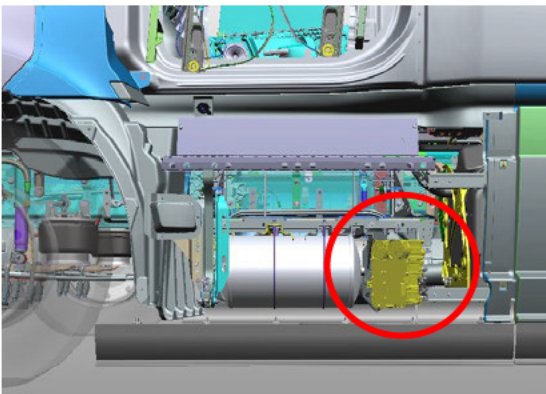
Better sealing and air retention mean the system can **hold pressure longer**, reducing idling and saving fuel. Automatic moisture removal eliminates manual draining, making inspections faster and easier.

Safety is enhanced with the electronic park brake and Rollaway Mitigation by helping prevent costly and dangerous rollaway incidents. (See High Spot for more information on Rollaway Mitigation)

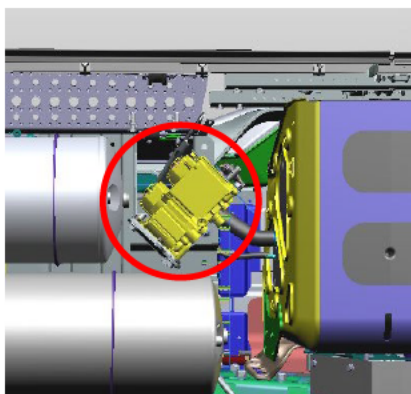


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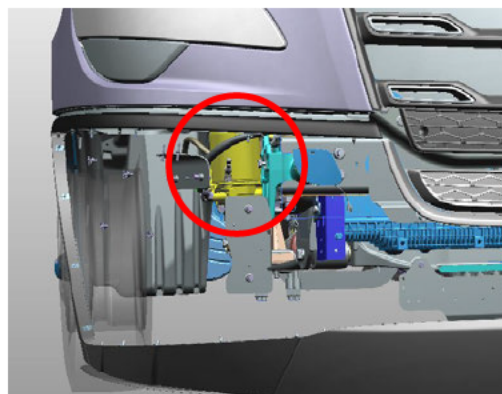
EAPU Module Driver-Side View



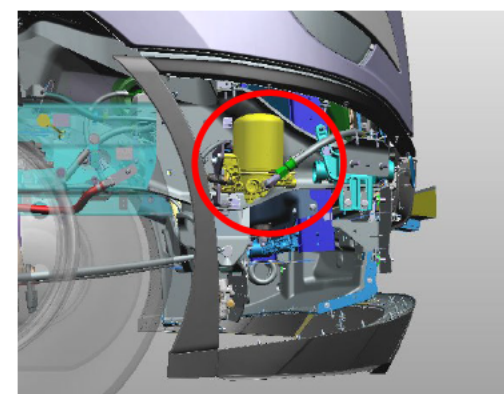
EAPU Module Bottom View



EAPU Air Dryer Front View



EAPU Air Dryer Passenger-Side View



Key Features:

- eAPU combines valves, sensors, and circuit protection in one unit, improving leak detection and making isolation easier.
- Straight-threaded o-ring fittings deliver tighter seals, holding pressure up to 72 hours—reducing leaks, cutting idling, and creating a quieter cab.
- Intelligent Air System powers electronic park and trailer brakes, enabling safety features like Rollaway Mitigation.
- eAPU and Bendix air dryer condition the air electronically, removing moisture as needed and eliminating the need for drivers to manually drain air tanks during inspections.

Affected models: Fifth Generation Cascadia [Checking on Fourth Generation](#)

Resources: Highspot: [Fifth Generation](#) | [Efficiency - Cascadia ACE & Intelligent Air System](#) | [Freightliner](#); [Fifth Generation](#) | [FAB329 Electronic Park Brake](#) | [Freightliner](#); Owners Manual: [LINK](#)

Data Codes:

108-012	INTELLIGENT AIR SYSTEM WITH ELECTRONIC AIR PROCESSING UNIT (EAPU)	Standard
480-089	AIR DRYER FUNCTION INTEGRATED INTO ELECTRIC AIR PROCESSING UNIT (EAPU) - SINGLE ELEMENT	Standard
483-003	BENDIX OIL COALESCING FILTER FOR AIR DRYER	Standard
358-002	ELECTRONIC AIR PROCESSOR UNIT W/ INTEGRATED ELECTRONIC PARK BRAKE (EAPU+EPB)-GEN 3.0	Standard

