EP-60 is an electronically controlled pneumatic (ECP) train brake that provides a dramatic improvement in train handling for long, heavy haul trains. Graduated application/release and simultaneous, load-compensated braking on each car give EP-60 equipped trains faster brake response and better train handling. The result is significant fuel savings and less lading damage, as well as less wheel, shoe, and draft gear wear. EP-60 has logged millions of car miles of revenue service and meets the latest AAR S-4200 specification in all areas, proving that it is the industry’s most advanced and reliable ECP package.
Wire-based control of each car enables simultaneous control of every car in the consist. EP-60's low air consumption allows railroads to run longer trains without the need for compressor cars or additional locomotives. Each car performs braking functions simultaneously, significantly reducing in-train forces.

Standalone configurations eliminate pneumatic service and emergency portions, are lighter, and are designed to fit in the same space envelope as the DB-60.

Benefits in the reduction of in-train forces are far-reaching in operation, maintenance, and safety—particularly in the areas of fuel consumption, speed control, stopping distances, freight car fatigue, track wear, brake shoe wear, and lading protection. These EP-60 benefits have increased ton-miles per train.

EP-60 overlay installation options are suitable for both new and retrofit applications, and can be easily upgraded to a standalone configuration.
**Car Control Device (CCD)**
The CCD is a microprocessor-based module delivering precise braking control at each freight car. It is designed to mount to existing pipe brackets. The CCD is engineered for very low power consumption and is available in either a standalone or overlay configuration.

**Trainline Communications Controller**
Train operator brake commands are transmitted from the locomotive via the TCC, the brain of the system that manages the ECP network. This unit houses the brake control module and a single-board computer, which performs several important functions, including the management of the AAR-approved network protocol, Echelon® LonWorks™. It also manages in-train sequencing, fault monitoring, data logging, and the event recorder interface. The TCC manages the Wire Distributed Power feature, which is efficiently enabled over the LonWorks™ network.

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**EP-60 Features & Benefits**

**Diagnostics**
EP-60 includes diagnostics at the individual car and the locomotive. System performance is continuously monitored, with individual car status reports transmitted to the TCC. Also, each CCD has a car-sensor interface to provide data flow from car sensors to the locomotive, allowing real-time monitoring of selected car parameters.

**Compatibility & Flexibility**
The EP-60 design incorporates both standalone and overlay features, allowing the CCD to be configured alone or with existing pneumatic controls. EP-60 meets or exceeds the AAR performance specifications, and its communication network has available bandwidth to handle car-sensor data flow. Individual car ID modules provide key data on car characteristics and brake ratios.

**Variable Load Braking**
The EP-60 design provides a unique feature which achieves a uniform brake ratio at all car loadings. This assures that light cars do not get over-braked. Improved train handling results from a reduction of in-train forces generated while braking a mix of empty, partially loaded, and fully loaded cars. The use of analog solenoid valves provides proportional brake cylinder control, as well as graduated application and release.

**High Reliability & Low Maintenance**
EP-60's CCD is lightweight, robust, and reliable. It has been thoroughly tested in the laboratory and in real-world revenue service under extremely harsh environmental conditions to ensure that high reliability targets are met. EP-60 is a wire-based trainline design which includes a network communication and power-line carrier features. A future design will employ a special, highly reliable wire/air connector that carries the electronic signals, electronic power, and the brake pipe air supply.

**Safety**
Pneumatic brake backup capability is integrated into EP-60. Advanced trainline communications and fault-free control logic provide fail-safe operation. A trainline power safety interlock, which protects the crew from high voltage during train make-up, further enhances safety.

**High Return on Investment**
EP-60 has proven itself in the harsh climate of Northern Canada over years of revenue service on QCM iron ore trains, where very high reliability service continues to be demonstrated. The improved train handling significantly decreased fuel consumption, dramatically increased brake shoe life, and greatly decreased coupler and knuckle failures. It completely eliminated UDEs. EP-60 reduces in-train forces, prolongs wheel life, and safely permits higher operating speeds and shorter stop distances. The result is a proven technology that delivers a high return on investment, increased safety, and improved operation.