High reliability, low cost brake control

Low horsepower locomotives using legacy 6L, 26NL, and 26L air brake controls need frequent, costly, and time-consuming maintenance requiring spare parts that are increasingly hard to find. Air brakes are the primary safety system on locomotives and failures can take locomotives out of service, and affect operations and customer service.

New York Air Brake’s CCB-26 offers railroads an affordable, reliable upgrade for these older air brake systems. Its simplified manifold requires only three pipe connections. CCB-26 provides the same proven electro-pneumatic and closed-loop pressure control technology that has made CCB II the industry standard for mainline road locomotives. CCB-26 is the most reliable air brake system in the industry. Self-diagnostics, combined with the modular LRU design, decrease average repair time to less than 8 minutes. These features are critical to achieving very high availability of locomotives.

Reduced life cycle costs

26L equipment typically requires eight overhauls in its service life whereas CCB-26’s minimum five-year COT&S cycle significantly reduces locomotive downtime and maintenance costs. Its higher reliability reduces repair costs by 75 percent, road failures by 75 percent, and cuts life cycle costs overall by at least 35 percent.

Simpler installation

The electronic brake valve (EBV, driver’s brake valve) is the “Man / Machine” interface to the CCB-26 brake system. The EBV is designed for installation in the same mounting envelope as the 26C brake valve located in the engineer’s stand, and is used by the engineer to control the independent brake, automatic brake and bail-off. The EBV includes the Lead/Trail switch and the ER setpoint (feed valve) switches required for setting the brake system operating mode and equalizing reservoir setpoint.

The operator commands the computer through the electronic brake valve controller. The EBV is also on the network and signals the handle positions for automatic and independent braking. An exception is the initiation of an emergency brake application that is, redundantly, propagated through a network command and a mechanically actuated vent valve when the automatic handle is placed into the emergency position.

The CCB-26 system performs several diagnostic functions. Faults are presented to the operator via an LCD screen mounted on the driver’s brake valve, EBV. This screen is also used for routine advisory instructions such as penalty reset and emergency reset.
The CCB-26 electro-pneumatic control unit (EPCU) is mounted in the locomotive brake bay. It consists of modularized line replaceable units (LRUs) that control the development of all pneumatic control pressures.

1. **Brake Pipe Control Portion (BPCP)** — The primary function of the brake pipe control portion is supply, exhaust, maintaining, and cut-off of the trainline brake pipe. The BPCP includes the brake pipe relay valve, emergency magnet valve and vent valve, and brake pipe cut-out function as well as break-in-two detection and brake pipe pressure sensing.

2. **Equalizing Reservoir Control Portion (ERCP)** — The primary function of the ERCP is control of the brake pipe relay. The ERCP controls equalizing reservoir pressure. The pneumatic and electrical control portions of the ERCP include emulation of pipes 3, 10, and 26. Optional penalty magnet valves can be piped to the manifold pipe 3 port for suppressible penalties, and to the pipe 10 port for non-suppressible penalties. In this manner, the penalty interface is identical to a 26L pneumatic braking system.

3. **DB Triple Valve Portion (DBTV)** — The DBTV develops brake cylinder pilot pressure during service brake applications, sensed by reduction of brake pipe pressure.

4. **16 Control Portion (16CP)** — Provides brake cylinder limiting and brake cylinder assurance in emergency.

5. **Relay Control Portion (RCP)** — Mounted on the EPCU, the RCP contains the systems relays, and provides discrete signal interface to the locomotive controls and sanding equipment.

6. **20 Control Portion (20CP)** — The 20CP provides independent application and release pipe pressure.

7. **Brake Cylinder Control Portion (BCCP)** — The brake cylinder control portion provides brake cylinder pressure based upon the level of pipe 16 and pipe 20 pressures. Various BCCP portions are available depending upon the required brake ratio of the applied locomotive.

8. **13 Control Portion (13CP)** — Provides bail-off (actual) pipe pressure.

9. **Power Supply Junction Box (PSJB)** — Contains the EPCU power supply.
Proven Productivity through Technology

In the early 1990s, NYAB embarked on a mission to deliver new technology solutions, and products with superior performance and reliability, to the railroad industry. Success depended on applying state-of-the-art design and testing techniques, coupled with advanced quality manufacturing methods. The result after 10 years has been dramatic in terms of customer acceptance of these new products.

In 1992, NYAB introduced the DB-60 control valve which delivered best-in-class reliability, and by 2006 has an installed base of 325,000 cars. NYAB introduced CCB I in 1994, and in 1998 launched the next generation CCB II, which set the standard for locomotive electronic air brake reliability with 8,300 systems delivered worldwide.

In addition to air brake controls development, NYAB also invested in advanced train control systems, including EP-60 electronic air brake and LEADER train handling technology coupled with training simulators. In 2006, LEADER demonstrated its capability in achieving 11% fuel savings on a Norfolk Southern pilot program. In 2005, Spoornet awarded NYAB a major contract for supplying EP-60, the only AAR approved ECP brake, for installation on its coal fleet.

NYAB continues to invest in innovation based on a proven track record in delivering new products such as CCB-26, and other train control technology under development, designed to increase customers’ productivity through technology.

For more information about our proven products, contact a NYAB representative, visit www.nyab.com, or call us at 315-786-5431.