

Brakes

Freight Car ABDX-Type Control Valve

Course Objective: The student will become familiar with the new ABDX Control Valve and its features, such as, how it improves service braking, the new service piston, diaphragm and diaphragm clamping arrangement, continuous quick service function improvements and other benefits of the ABDX-Type Control Valve. Review diagrammatic drawings for functional analysis only.

Who this is for: Anyone needing a general description and operation of AB-Type Single Capacity Freight Car Air Brake Equipment with the ABDX-Type Control Valve as approved by the AAR for cars in interchange service.

Item Code	Lesson Description
ABX.1	Equipment parts such as pipe bracket and pipe connections, service and emergency portion
ABX.2	ABU brake cylinders, dirt collector and Dynaball cut-out cock, reservoir, retaining valve, and hose connections
ABX.3	Operation of the ABDX control valve and plates (schematics 1 through 4)
ABX.4	Emergency accelerated release
ABX.5	Emergency: final stage

Item Code	Required Textbook
BKABDX	<i>AB Single Capacity Freight Car, Air Brake Equipment with the ABDX-Type Control Valve</i> This book not available separately

Item Code	Full Course Title (Includes Textbook)	Price
ABX1FC	Freight Car ABDX-Type Control Valve	\$129.80

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

Single Car Air Brake Test Procedures

Course Objective: The student will learn, through expertly designed flow charts, the proper steps to follow when doing brake tests. They will also use troubleshooting tips to look for possible causes, solutions and repairs.

Who this is for: Carmen, brakemen, mechanics, maintenance workers, supervisors, inspectors and anyone else involved in the repair and proper maintenance of the air brake.

Item Code	Lesson Description
SING1.D	Single car test device, brake cylinder pressure gauge, and system overview, Daily Test, and testing of air brakes (Chart A)
SING2.D	Single Car Test, before you start, brake cylinder pressure gauge fittings, Brake Pipe Leakage Test, Continuous Quick-Service Valve Test, and Separate Vent Valve Test, System Leakage Test, and hand brake inspection
SING3.D	Service Stability Test, Emergency Test, Release Test After Emergency, Retaining Valve Test, and Minimum Application and Quick-Service Limiting Valve Test
SING4.D	Brake Cylinder Leakage Test, Slow Release Test, Accelerated Application Valve (AAV) Test, Recheck of piston travel, Manual Release Valve Test, completing test on a loaded or an empty car not equipped with empty/load equipment, completing test on an empty car equipped with empty/load equipment, disconnecting test device, Retaining Valve Test, Slack Adjuster Test and piston travel adjustment, Brake Cylinder Pressure Tap Leakage Test, Brake Cylinder Leakage Test Using Gauge, and Empty/load Test
SING5.D	Job Aids: WABCOPAC/Nycopac piston travel and handbrake adjustment, control valve identification, general inspection of vertical wheel hand brakes, slack adjuster field test and adjustment procedures
SING6.D	Job Aids: Empty/load valve identification
SING7.D	Job Aids: Piston travel, Nycopac II, Nycopac IIA, TMB-60
SING8.D	Job Aids: Pressure taps

Item Code	Required Textbook
BKSCTD	<i>The Single Car Air Brake Test Procedure Manual</i>

Item Code	Full Course Title (Includes Textbook)	Price
SING1DFC	Single Car Air Brake Test Procedures	\$207.00

Brakes

ABDW Control Valve

Course Objective: Inspect, service, repair and test AB single capacity freight car air brake equipment with the ABDW Control Valve. Perform testing, inspection and repairs of freight car and train air brakes.

Who this is for: Carmen, brakemen, maintenance worker, supervisors, inspectors and anyone involved in the repair and proper maintenance of the air brake.

Item Code	Lesson Description
B.15	Freight car brake equipment with ABDW control valve: general information, description of parts, introduction
B.16	Operation of ABDW brake equipment: full release, charging, service positions, emergency positions, release and relay valve functions (Part 1)
B.17	Operation of ABDW brake equipment: full release, charging, service positions, emergency positions, release and relay valve functions (Part 2)

Item Code	Required Textbook
BKABDW	<i>ABDW Control Valve</i>

Item Code	Full Course Title (Includes Textbook)	Price
B15FC	ABDW Control Valve	\$73.25

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

26L Brake Equipment

Course Objective: Identify the components of the 26-L locomotive brake system used on single and multiple unit operations. Understand the inspections, their application and when they should be done.

Who this is for: Anyone working with 26-L brake systems.

Item Code	Lesson Description
B.41	26L locomotive brake equipment

Item Code	Required Textbook
BKB41	<i>Air Brake Equipment</i>

Item Code	Full Course Title (Includes Textbook)	Price
B41FC	26L Brake Equipment	\$31.00

Enrolled students may take individual lessons.

Brakes

26-L Brake Equipment (Instruction Pamphlet No. 74)

Objective: The student will gain an understanding of the 26-C Brake Valve, 26-F Control Valve, and the High Capacity “J” Type Relay Valve. The student will study the operation and functions of those devices that are unique to the 26-L Brake Equipment.

Who This Is For: Carmen responsible for the inspection and repair of the 26-L Brake Equipment and Locomotive Operators who will be using the 26-L Brake Equipment on their train.

Item Code	Lesson Description
BE.1A	26C brake valve, auto brake operation, independent brake operation
BE.2A	26F control valve, J-1 relay valve, MU2A valve, F-1 Selector Valve
BE.3A	Overspeed and safety control functions: with P-2 brake application valve
BE.4A	Automatic split reductions during penalty brake application: with A-1 reduction selector valve

Item Code	Required Textbook
BK26L	<i>Instruction Pamphlet No. 74</i>

Item Code	Full Course Title (Includes Textbook)	Price
BE1AFC	26-L Brake Equipment	\$110.00

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

Note: The following three courses were developed in 1971-72 and known as the Chalk Talk Books. The brakes discussed in these books are still being used on some equipment today, thereby making some of the information still valuable.

ABCs of Air Brakes (Chalk Talk One)

Course Objective: The student will gain an understanding of the air brake, the parts, how it works and its roles in the braking action (braking ratio). Understand the differences between brakes used for freight versus passenger cars.

Who this is for: Anyone who works on brakes, or has a general interest in how brakes work.

Item Code	Lesson Description
B.1A	Railway train brake control
B.1B	Brake valve functions
B.1C	Equalization

Item Code	Required Textbook
BKABC	<i>ABCs of Air Brakes</i>

Item Code	Full Course Title (Includes Textbook)	Price
B1AFC	ABCs of Air Brakes (Chalk Talk One)	\$97.00

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

Brakes

Car Air Brakes (Chalk Talk Two)

Course Objective: The student will learn through illustrations and written explanation about car air brake devices, such as, various types of valves, automatic slack adjusters, retainers, safety valves, centrifugal dirt collector, brake-cylinder release valves and how they work.

Includes the AB, AB-1-B, AB-4-12, ABLC, brake equipment and the AC brake valve for freight cars; D-22-P, electro-pneumatic brake, speed-governor control, D-22-PD with 3AP decelostat equipment, universal control equipment with U-12-BD universal valve for passenger cars.

Who this is for: Operations personnel responsible for repairing or replacing air brakes on trains.

Item Code	Lesson Description
B.2	Brake application valves - relay valves
B.3	Slack adjusters - retainer valves, safety valves
B.4	AB freight car brake equipment
B.5	Passenger car brakes: D-22-P brake equipment, D-22-AR control valve
B.6	U-12-BD universal valve

Item Code	Required Textbook
BKCAB	<i>Car Air Brakes</i>

Item Code	Full Course Title (Includes Textbook)	Price
B2FC	Car Air Brake (Chalk Talk Two)	\$141.00

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

Locomotive Air Brakes (Chalk Talk Three)

Course Objective: The student will learn through illustrations and written explanations to recognize the various locomotive devices, such as, safety valves, vent valves, feed valves, air compressors and miscellaneous devices; and how they work. The student will also recognize the 24-RL and D-24 brake equipment, parts and how they function.

Who this is for: Anyone working on Locomotive Brakes.

Item Code	Lesson Description
B.7	24-RL locomotive brake equipment
B.8	24-RL brake equipment, Rotair valves
B.9	D-24 brake valves
B.10	D-24 control valves

Item Code	Required Textbook
BKLAB	<i>Locomotive Air Brakes</i>

Item Code	Full Course Title (Includes Textbook)	Price
B7FC	Locomotive Air Brakes (Chalk Talk Two)	\$119.00

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

Brakes

Air Brake Equipment - History and Development

Course Objective: The student will gain a general knowledge of the history of brakes, the features of brakes and the principles upon which they work.

Who this is for: Carmen, brakemen, section crews and personnel that need to understand the braking system and principles.

Item Code	Lesson Description
B1	Development of basic principles, modern features

Item Code	Required Textbook
BKB1	<i>Air Brake Equipment</i>

Item Code	Full Course Title (Includes Textbook)	Price
B1FC	Air Brake Equipment	\$31.00

Enrolled students may take individual lessons.

Air Brake Equipment - Compressors

Course Objective: Provide the student with an overall understanding of air compressors and how they function. Recognize the various types, identify the working parts, their function, how to maintain them, and how they work for airbrake equipment.

Who this is for: Carmen, brakemen, section crews and personnel working on brakes with air compressors.

Item Code	Lesson Description
B.11	Air brake equipment - air compressors, operation, maintenance

Item Code	Required Textbook
BKB11	<i>Air Brake Equipment - Compressors</i>

Item Code	Full Course Title (Includes Textbook)	Price
B11FC	Air Brake Equipment Compressors Full Course	\$31.00

Enrolled students may take individual lessons.

Brakes

Understanding and Servicing Freight Car Brake Rigging

Course Objective: Identify the various types of air brake rigging, the parts of an air brake, and the basics of an inspection of rods, levers, piston travel, brake rigging etc.

Who this is for: Inspectors, carmen, or anyone responsible for servicing brake rigging.

Item Code	Lesson Description
B.21	Freight car brake rigging (Part 1)
B.22	Freight car brake rigging (Part 2)

Item Code	Required Textbook
BKFCBR	<i>Understanding and Servicing Freight Car Brake Rigging</i>

Item Code	Full Course Title (Includes Textbook)	Price
B21FC	Understanding and Servicing Brake Rigging	\$57.00

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

Air Brake Equipment

Course Objective: Learn the basics of the AB brake system and along with an introduction to freight car and train air brakes, inspection, service, repair and testing AB brakes. This course introduces the fundamentals of how various components of the brake system function together. Covers angle cocks, combined cut-out cock and dirt collector, flanged union fittings, control valve portions and more. Control valve release and charging is explained along with release and recharging after service application. Emergency action and other control valve functions are discussed.

Who this is for: Carmen, brakemen, maintenance workers, supervisors, inspectors, and anyone involved in the repair and proper maintenance of the air brake.

Item Code	Lesson Description	Price
OA.41	The AB Brake	\$31.00
OA.4B	Freight car and train air brakes: testing, inspecting, and repairs	\$31.00
* Each lesson comes with textbook		
Item Code	Full Course Title (Includes Textbook)	Price
OA41FC	Air Brake Equipment	\$62.00

Enrolled students may take individual lessons.

Brakes

Guide to Freight Car Air Brakes

Course Objective: The student will learn through text and illustrations the proper care and inspection of Freight Car Air brakes.

Who this is for: Carmen, brakemen, mechanics, maintenance workers, supervisors, inspectors and anyone else involved in the repair and inspection of the air brake.

Item Code	Lesson Description
FCAB.1	History, System Overview, Hoses, Angle Cocks, and End Cocks
FCAB.2	Brake Shoes, pipes, and fittings
FCAB.3	Combined dirt collector, cut-out cock, levers, and badge plates.
FCAB.4	Hand brakes, brake beams, rods, pins, and safety supports
FCAB.5	Control valves and control valve pipe brackets
FCAB.6	Reservoirs, and auxiliary brake pipe reduction devices
FCAB.7	Retaining valves, J-1 relay valve, and empty/load equipment
FCAB.8	Foundation brake cylinders, automatic slack adjuster, WABCOPAC and Nycopac truck-mounted brake systems.
FCAB.9	WABCOPAC II, Westinghouse TMX, Ellcon-National 8500, and Thrall truck-mounted brake systems.
FCAB.10	TX/Misner (air bag) truck-mounted brake system, air bag actuator for single axle truck and TMB-60 air brake system

Item Code	Required Textbook
BKFCAB	<i>Guide to Freight Car Air Brakes</i>

Item Code	Full Course Title (Includes Textbook)	Price
FCAB1FC	Guide to Freight Car Air Brakes	\$288.75

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.

Brake System Safety Standards

Course Objective: Identify the safety standards for freight and other non-passenger trains and equipment and end-of-train devices. Follows Final Rule; Code of Federal Regulations Part 232 - The Brake System Safety Standards for Freight and Other Non-Passenger Trains and Equipment; End-of-Train Devices.

Who this is for: Anyone working with freight and non-passenger brake systems.

Item Code	Lesson Description
BSS.1B	General information and requirements
BSS.2B	Brake System Safety Standards, Part 232, Subparts, C, D, E, and F

Item Code	Lesson Description
BKBSS	<i>FRA Brake System Safety Standards for Freight and Other Non-Passenger Trains and Equipment, End-of-Train Devices</i>

Item Code	Full Course Title (Includes Textbook)	Price
BSS1BFC	Brake System Safety Standards Full Course	\$57.75

Enrolled students may take individual lessons.
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Brakes

Hand Brakes

Course Objective: Be knowledgeable of the Interchange Rules and Railroad Safety Appliance Standards governing hand brakes, also loading rules are discussed.

Who this is for: Carmen, brakemen, section crews and personnel responsible for the safe usage and regulations covering hand brake use.

Item Code	Lesson Description
HB.1A	History terms, safety tips, AAR and FRA rules and regulations, various types of hand brakes
HB.2A	History terms, safety tips, AAR and FRA rules and regulations, various types of hand brakes

Item Code	Required Textbook
BKHB BK	<i>Hand Brakes</i>

Item Code	Full Course Title (Includes Textbook)	Price
HB1AFC	Hand Brakes	\$57.95

Enrolled students may take individual lessons.
Please contact student services for individual lesson and textbook pricing.