

SPECIFICATIONS FOR RAPID TRANSIT CARS

SECTION 11

BRAKES

11.01 General

(a) An Electro-pneumatic air brake system shall be provided.

(b) Air brake control shall provide for interlocking and blending ^{of} air and dynamic brakes.

(c) A handbrake shall be provided on one end of each car.

(d) Air brakes and hand brakes shall comply with all applicable ICC regulations.

11.02 Air Brakes

(a) An air brake system of the Westinghouse Air Brake Company's "SMEE" electro-pneumatic type with ME-42 brake valve shall be provided, including self-lapping, automatic emergency and variable load features.

(b) An initial predetermined amount of air shall be admitted to the brake cylinders when the dynamic brake is operating to assist in synchronizing and blending of the air with the dynamic brake when the latter fades at the end of the normal service stop.

(c) An emergency application shall result from operation of the brake valve to the emergency position; functioning of the master controller dead-man feature; operation of the conductor's emergency valve or the

automatic train stop valve, or from any rapid reduction of brake pipe pressure in the train. Any emergency application from any car of the train shall promptly apply the emergency brakes on all cars in the train and shall be so arranged as to shut off the power on all cars simultaneously when the emergency application reaches the operating car. It shall be possible to obtain a full emergency application or release regardless of the degree of service application.

(d) A pneumatic brake shall be provided which shall cut in automatically when the electro-pneumatic brakes fail without further movement of the brake valve.

11.03 Air Supply System

(a) An adequate motor-driven air compressor operated on the 600-volt supply shall be provided on all single-car units, and on the "B" car of two-car units. Compressors on single-car and two-car units shall be interchangeable.

(b) A suitable governor shall be provided that will start and stop the air compressor within 5 lbs. per square inch above or below the pressure fixed.

(c) A pneumatic governor synchronizing system shall provide means to distribute compressor duty to all of the compressors in the train.

(d) The main reservoir system of each unit shall be equipped with at least one safety valve, so located as not to be subject to freezing, the capacity of which shall be sufficient to prevent the accumulation of more than 10 lbs. per square inch above maximum working pressure.

(e) The nominal maximum pressures in the air brake system shall be 155 lbs. per square inch (main reservoir safety valve setting) with the governor set at 130 - 140 lbs. Brake pipe pressure shall be 110 lbs. and the pressure in the brake cylinders shall be regulated through the variable load device between the empty and fully-loaded car.

(f) A supply reservoir shall be provided to prevent auxiliary devices from draining the air from the brake system, thereby assuring air reserved for braking.

(g) A cut-out cock shall be provided in the brake cylinder line for cutting out the brake cylinders and shall be located inside the car under a seat.

(h) Cut-out cocks shall be provided in the train lines at the end of the car.

(i) An automatic drain valve of approved type shall be provided on the No. 1 main reservoir.

(j) An air gauge shall be provided in each cab and shall have an illuminated dial graduated from 0 to 160 lbs. The gauge shall have two indicating hands, RED

for main reservoir pressure, and BLACK for brake pipe pressure.

11.04 Brake Cylinders

(a) Four brake cylinders and automatic slack adjusters shall be mounted on each truck. Single brake shoes of the "Cobra" type, or approved equal, shall be inside-mounted on the trucks and shall provide for a maximum braking rate of 4 MPHPs.

11.05 Emergency Valve

(a) An emergency valve shall be located in each motorman's cab, and at the conductor's position at diagonally-opposite end of two-car units. A suitable cord and handle shall be provided on the rear of the cab partition to permit operation of the emergency valve from the interior of the car.

11.06 Automatic Train Stop Trip Cocks

(a) A self-resetting type trip cock shall be provided on each truck, opposite the motorman's cab, and diagonally opposite on the other end of car on two-car units. Trip cocks shall be mounted to gauge and adjustable as to height in accordance with Railroad Drawing No. _____ File _____.

11.07 Air Piping

(a) Car body air lines shall be of suitable capacity

and shall be seamless copper tubing Class "L", securely fastened. Fittings shall be long-sleeve type of wrought copper or cast brass. Piping shall be installed so as to provide proper drainage to prevent freezing.

(b) Truck air lines shall be AAR standard air brake piping. Truck piping shall be installed on the frame to reduce hose connections to a minimum.

(c) Flexible connections shall be provided on piping between the compressor unit and the car body.

11.08 Hand Brakes

(a) A hand brake, Peacock No. 840 or approved equal shall be provided at the rear end of single-car units, and at the end opposite the motorman's cab on two-car units.

(b) Hand brakes shall be located in the platform post, opposite motorman's cab on single-car units, and opposite conductor's position on two-car units.

(c) Hand brakes shall be connected to the adjacent #2 truck mechanically, and together with necessary car body brake rigging, shall be capable of holding the fully-loaded car on a 5% grade with a force of not more than 125 lbs. on the hand lever.