DISCUSSION

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There is a slight error in the report concerning the amount of travel afforded by the Cushion Coupler. This discussion will serve to bring the information on this coupler up to date.

A new end-of-car cushioning device has been introduced by the Cushion Coupler Corporation of Chicago. This coupler is, in reality, a conventional coupler with integral cushioning, damping, and self-aligning means. Its primary application is for existing 50-ton freight cars with conventional draft gears and center sills. Its design is such that the application is performed with no alterations whatsoever to the car. The rear tail shank portion is dimensionally identical to the shank of a standard “E” coupler. Hence, the procedure in applying the Cushion Coupler is the same as a replacement of standard “E” couplers even to the point of using the same draft key. An intermediate air hose is applied to compensate for the additional length. This length is 175/16 in. It complies with all AAR standards.

The Cushion Coupler itself accounts for 71/4 in. travel in buff. This, coupled with draft gear travel, assures a minimum of 10 in. of buff travel, to which can be added the travel and capacity of the adjacent car draft gear assuring an additional minimum of 2 7/8 in. or 12 5/8 in. per car end in buff.

The cushioning is provided without the aid of hydraulics or springs. Rather it is a combination use of elastomer pads in shear, compression, and friction with a resultant minimal maintenance.

The coupler is failsafe by virtue of the keys holding units together like a “chain.”

Energy absorption is approximately 220,000 ft-lb at full travel. Another unique feature of the coupler is its preload factor. Travel of the head shank with respect to the tail shank does not take place until a force approaching 100,000 lb is exceeded. The purpose here is that a constant restoring force is present to return the coupler to full draft once an impact has occurred. Dynamic rebound is eliminated due to the inherent damping qualities that are present in the elastomer and friction elements.

The first car sets are currently on test in auto glass shuttle service. Thus far, all reports are highly satisfactory. Within the next few weeks, further tests will be undertaken in paper, auto parts, and steel coil service.

Due to the vast number of existing noncushioned cars, it is strongly felt that the Cushion Coupler will be a very prominent factor in reducing the crippling lading damage payout which last year amounted to $100 million.

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