DATA SHEET

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Sheet #:	**D6g**
Title:	**BUMPING POSTS**
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Originally Compiled by:	**Richard C. Wagie**
Source Material:	Western Railroad Supply Co., Chicago, IL Hayes Track Appliance Co., Richmond, IN
Illustrations:	J.J. Meyer, F. "Russ" Schwartz
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INTRODUCTION

Bumping posts are used at the end of tracks in yards and industrial sidings where a stationary position of a car is to be maintained for the protection of rolling stock and right-of-way.

GENERAL

Bumping posts may be commercially made or "home-made" from available material such as ties, a pile of dirt, or concrete. Commercial posts are made in a variety of types for use on little used sidings, heavy duty yard tracks, and various other combinations. Ties and dirt piles are usually found on industrial sidings and other areas where freight cars are switched while concrete posts are used in passenger terminals and other areas where it is imperative that the car not go beyond the bumping post.

COMMERCIAL BUMPING POSTS

Each post consists of two triangular units that are connected at the top to form a pyramid, with the striking face at the top. The striking face of the post is offset from the centerline of the track from four to six inches. This is so that the coupler knuckle will touch directly on the striking face squarely, eliminating wear on the post as well as on the couplers with which it will come in contact.

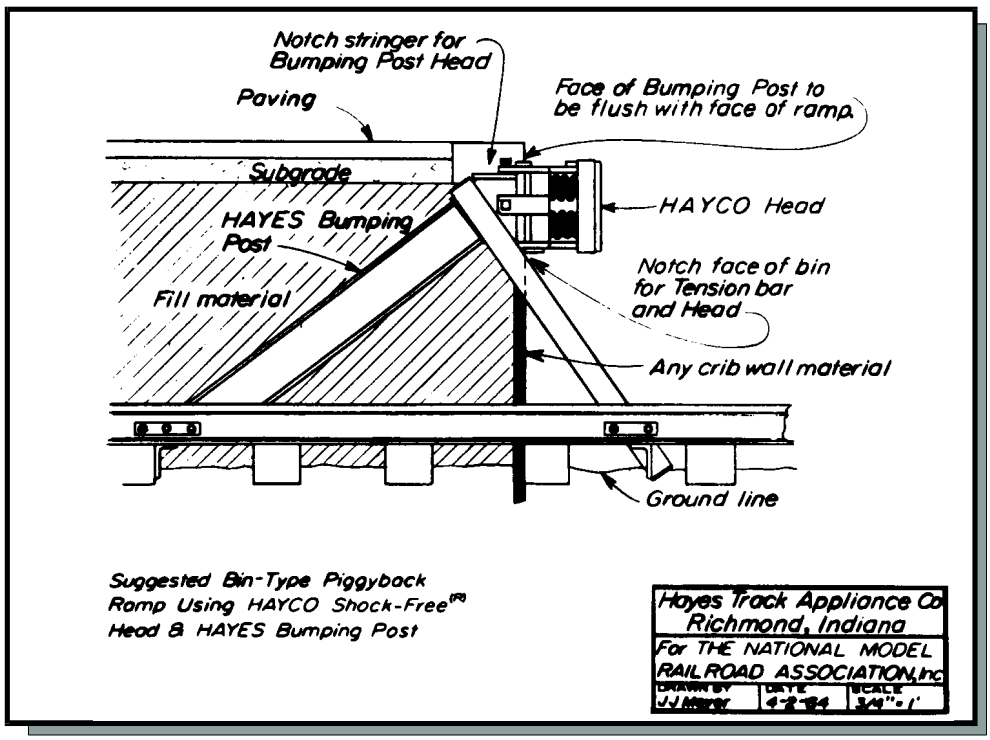

Figure 1: HAYES BUMPING POST

GENERAL COMPONENTS OF THE BUMPING POST

Striking face: This is the fabricated steel plate assembly at the top, or head, of the post. This is the part that comes in direct contact with the coupler of the striking car. The couplers that it will come in contact with determine the distance above the railhead for the striking face. The striking face is to meet squarely and come in direct contact with the coupler knuckle, perfectly centered in respect to the lower and upper surfaces contacted. A curved striking faceplate is available from manufacturers for passenger use. Its construction allows it to give a more cushioning effect than those employed in freight service.

Tension bars: These are the steel rods that feel the "pull" when a car's coupler strikes the post. The moving inertia of the car pulls upward on the tension bars, thus putting stress on the rail clamps.

Compression beams: These two channel-steel members complete the unique pyramid construction of the manufactured post. As the name implies, these beams receive the "push", "pressure", or "compression" when the striking face is hit by a force. Their rail bolts must sustain the impact, and this is why they are bolted to the rail instead of merely clamped. Since the beams are placed on an angle, the ties and ballast, instead of the rails, receive most of the force when a post is struck.

Figure 1 illustrates the most common type of "freight only" bumping post in use today. Its construction is such that it will move only a fraction of an inch, if at all, when struck by a moving force. Such bumpers are also used by railroads in various other countries with or without any modifications.

TYPICAL BUMPING POST - (HAYES)

TYPE (Fig. 2)	RAIL WEIGHT (POUNDS)	TENSION BARS (INCHES)	COMPRESSION BEAMS (INCHES)	STRIKING FACE (INCHES)
WK	80-140	1 x 4	6x9x13½	12x9
WD	80-140	1 x 4	6x9x17	12x9
WG	80-140	1½ x 4	6x9x37	12x9
WA	85-155	1½ x 6	6x9x49	12x9

Type WK is suitable for use on an industry siding where it will not be subject to frequent and excessive battering.
Type WD is for general use almost anywhere where switching is performed with infrequent battering of the post.
Type WG is for more severe service, as all of the sectional components are made to more constraining specifications.

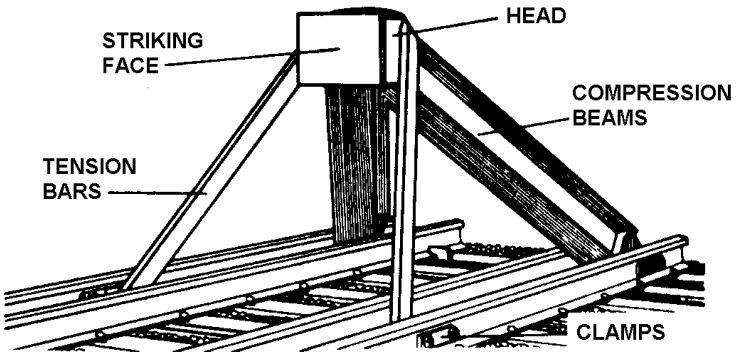

Figure 2: TYPICAL BUMPING POST

GENERAL COMPONENTS OF THE BUMPING POST - continued

Type WA is the heaviest of all the above mentioned, and is for use on track of the heaviest and best modern construction. It is made to take almost all the punishment that can be realistically given.

INSTALLATION

Use of the heaviest and longest rails available with sound, heavily ballasted ties is recommended. Compression joints should be placed about three tie spaces from the end of the track. (Fig. 3)

DISTRIBUTION OF IMPACT

When a coupler strikes the face of a post, the impact is taken in three different directions: 1) Horizontal thrust along the track; 2) Upward thrust at the front (or tension) unit; 3) Downward thrust at the rear (or compression) unit. (Fig. 4) Through proper use and installation of the braces and cross-members, all of the above three forces are distributed evenly to rails, ties, and ballast, thus leaving behind no trace of damage to either.

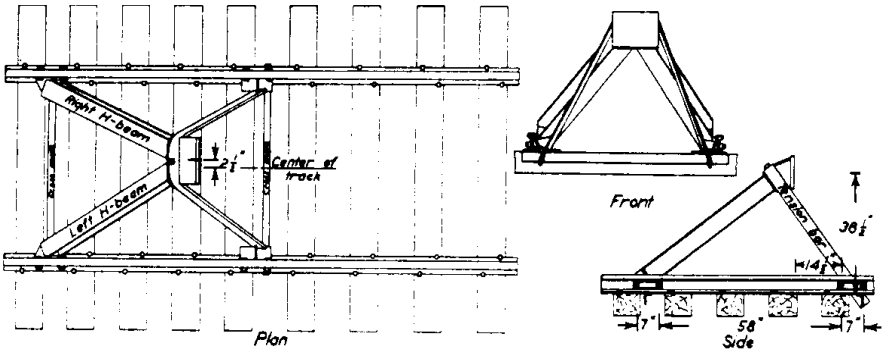

Figure 3: INSTALLATION

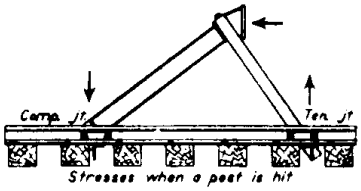

Figure 3: DISTRIBUTION OF IMPACT

HOME-MADE BUMPING POSTS

Home-made bumping posts may consist of anything from ties laid across or chained to the track, to a concrete footing or simply a heap of dirt dumped at the track's end. The ties that may be chained to the track are usually only high enough to stop the wheels of the truck, or two to three ties high. (Fig. 5)

Concrete footings are generally higher than conventional manufactured bumpers, about four to five feet high. They are often about three to four feet square, and have a faceplate (or striking face) made of a wood block or steel plate. Since the footing is solid and the faceplate bolted on, there is no room allocated for tension or compression, or "give", as we know it.

Again, dirt piles are trimmed to a height of one to two feet, such that they will effectively stop the truck wheels upon contact. Since dirt will almost always tend to be soft, there is a more cushioned stop with the dirt pile. (Fig. 6.)

HOME-MADE BUMPING POSTS - continued

The words "generally", "often", and "usually" are used because home-made bumpers are of no particular dimension. They are utilitarian in construction with no specific uniformity followed from one situation to another. They are constructed from materials readily available at the location or easily brought in, to serve the same purpose as their manufactured brethren.

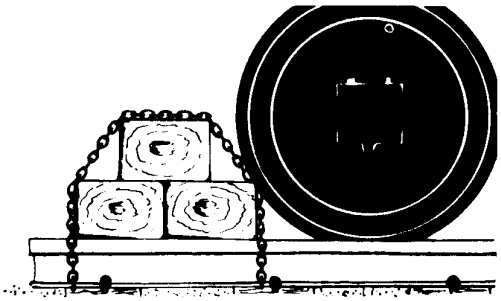

Figure 5: TIES

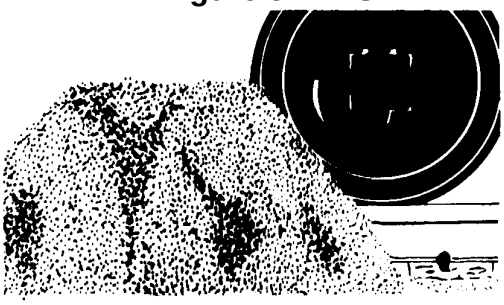

Figure 6: DIRT PILE