DERAILS

Installation

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SERVING THE INDUSTRY SINCE 1903

WESTERN-CULLEN-HAYES, INC.
2700 W. 36TH Place, Chicago, IL. 60632
(773) 254-9600 FAX (773) 254-1110

WESTERN-CULLEN-HAYES, INC.
120 N. 3rd St., P.O. Box 756, Richmond, IN 47374
(765) 962-0526 FAX (765) 966-5374

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1.0 PURPOSE OF A HAYES® DERAIL

A Hayes® Derail is a device designed to limit movement of free rolling uncontrolled railroad cars. This is accomplished by guiding the flange of a car wheel up and over the rail head and deflecting it laterally to drop the wheel clear of the rail on the field side (outside) of the rails. Movement of the car is halted by the wheels lodging in the tie cribbing and ballast.

2.0 MODELS OF HAYES® DERAILS

2.1 SLIDING, See Figure 1

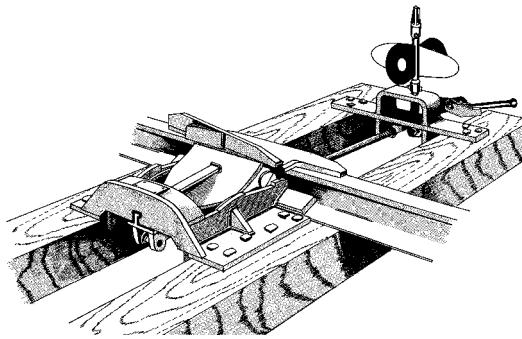


Figure 1-HB Sliding Derail with 2 Tie Operating Stand

Model HB Sliding Derail is designed to be operated on and off the rail in a sliding motion.

Model HB has three connecting lugs used for attaching switch circuit controller, operating devices or other equipment.

Model HBX derails from either direction (two-way). We recommend its use only when it is necessary to derail from either direction at low speeds. Figure 2 depicts the length and angle of deflection of our Model HB Derail. Figure 3 depicts the length and angle of deflection of Model HBX. The greater angle of deflection in Model HBX results in less derailing efficiency than Model HB.

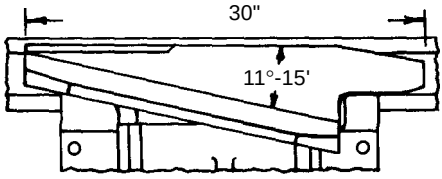


Figure 2-HB Derail (Right)

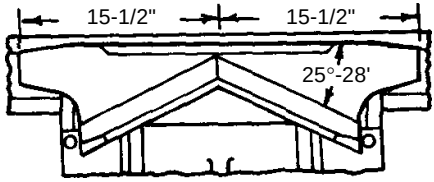


Figure 3-HBX Derail

All sliding derails must be used in conjunction with a manual operating stand, (conventional or high rise) or power assisted device, (ELDO, Delectric or Switch Machine).

2.2 HINGED, See Figure 4

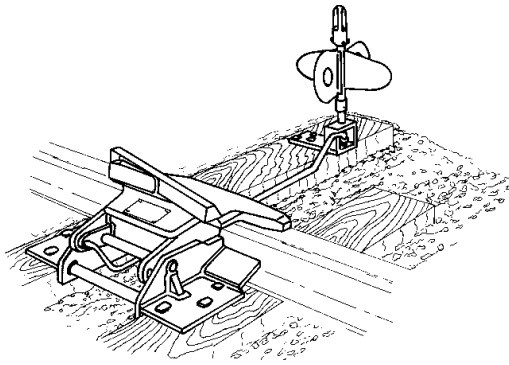


Figure 4-EB Hinged Derail with Target Stand

Model EB is our standard single deflection hinge derail. The derail block is thrown over in a vertical semi-circle on and off the rail by hand. Hinge derails cannot be operated by stand or power.

Model EBX is a double-end (two-way) hinge derail similar to Model HBX sliding derail. Recommended use is only when necessary to derail from either direction at low speeds. Figure 3 depicts the length and angle of deflection of Model EBX and HBX. The greater angle of deflection in Model EBX results in less derailing efficiency than Model EB.

Model EBF is the same as Model EB except it incorporates a heavy gauge metal blue flag. The flag can be raised or lowered with the derail, providing blue flag protection.

Model EBXF is same as Model EBF except it is a double-end (two-way) derail with blue flag.

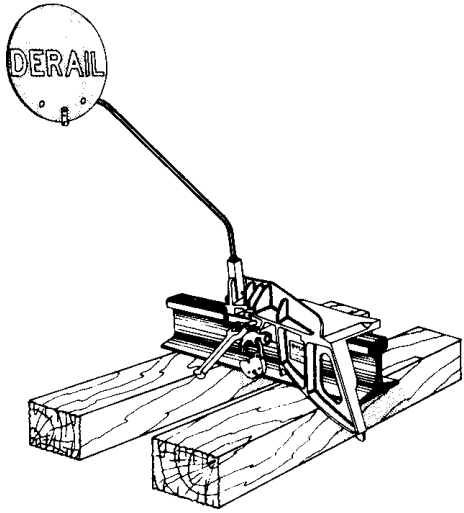


Figure 5 - LPTS PORTABLE DERAIL

2.3 Model LPTS portable derail, is made of high strength low alloy steel providing strength and durability, yet is light-weight. It fits all standard "T" rail sections from 75 to 136 pounds and is single direction throw. The derail can be padlocked on rail and is furnished with a blue flag

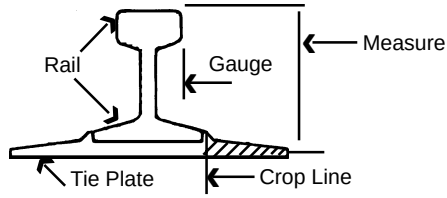
2.5 FIELD SIDE

Model KA is for use when between gauge equipment restricts standard derails. It is made using high-strength steel construction. This unit will function in ice, snow or sand conditions with less maintenance than other derails. Operation can be by manual operated stand, DeLectric Operator or Electric Lock Derail Operator (ELDO). Shims provided for exact fit to variety of rail sizes. Unique swivel action is easy to operate. Installation instructions are provided with units.

3.0 PREPARATION FOR INSTALLING HAYES DERAILS

3.1 Site Requirements

When preparing to install a Hayes Derail determine the most suitable location for the derail. Choose the model best adapted to the service required.



DERAIL SIZE	FOR RAIL (AND TIE PLATE) MEASURING
4	3/1-2 inches to 4-1/2 inches high
5	4-1/2 inches to 5-1/2 inches high
6	5-1/2 inches to 6-1/2 inches high
7	6-1/2 inches to 7-1/2 inches high
8	7-1/2 inches to 8-1/2 inches high

Provide a right hand or a left hand derail as the direction of derailing requires, unless a double-end derail is to be used. The requirements for the correct installation of a Hayes Derail are:

1. The track must be in good condition at the two ties where the derail is to be installed. The ties should be sound and well tamped up, are at right angles to the rail and must hold the rail firmly to the gauge.

2. The derail must be made a fixed part of the track.

3. If rail tie plates are used, they must be cropped even with the base of the rail; they should never extend under the derail.

4. Drainage must be adequate to prevent water from collecting around the derail. While water will not affect the function, ice can hinder the movement of the derail.

3.2 Selecting Correct Size

A Hayes Derail must be the correct size for the rail. The size number of the derail is stamped on the nameplate. This number indicates the distance in inches, from the top of the rail to the surface on which the derail will be secured.

If tie plates are used, they must be cropped even with the base of the rail on the gauge side. Total height measurement must include rail and tie plate. Always state total measurement so proper size of derail will be provided.

Remember, derail size is in even inches and is determined by the vertical height of the rail and tie plate, if any, at the derail location. Not every vertical distance is in even inches, (example: 5-3/4" rail on a 3/4" tie plate equals 6-1/2" vertical distance). Derails can be shimmed not more than one-half inch or the mounting surface lowered, (adzed) not more than one-half inch to accommodate height variations.

3.3 Selecting Correct Derailing Direction

Stand between the rails; look in the direction of the area to be protected and determine if the rolling equipment should be derailed to the right or left. Remember, a right hand derail will be mounted on the right hand rail and conversely with the left. Derails are always mounted on the gauge side (inside) of the rail with the exception of special Model KA derails.

4.0 INSTALLING SLIDING DERAILS (HB SERIES)

4.1 Locating the Derail

The distance the derail is to be placed from the point requiring protection should be determined by the probable distance the car will travel after being derailed. This depends on length of track, the grade and the condition of the soil. (Frozen ballast will permit farther travel than unfrozen.)

Always place the derail where it will be assisted by the track configuration. Placing the derail on the rail against which the wheels bind assists the derail in doing its work; placing it on the opposite rail may hinder derailment. Note Figures 6, 7 and 8.

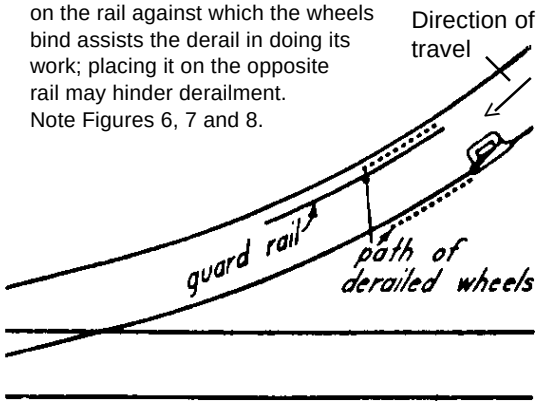


Figure 6 - Correct Location of Derail on Curve

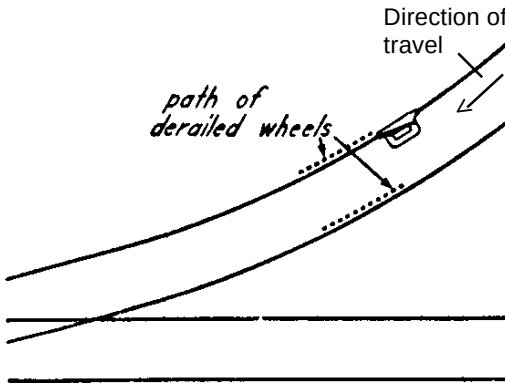


Figure 7 - Incorrect Location of Derail On Curve

CURVES: DO NOT LOCATE A DERAIL ON A CURVE WHERE THE WHEELS HAVE A TENDENCY TO BIND AGAINST THE OPPOSITE RAIL. ON CURVED TRACK LOCATE THE DERAIL ON THE OUTSIDE RAIL OF THE CURVE, ORDERING A RIGHT OR LEFT ACCORDINGLY.

IF LOCAL CONDITIONS FORCE THE USE OF A DERAIL ON THE INSIDE RAIL OF A CURVE WE RECOMMEND THE USE OF A WCH WHEEL CROWDER WITH THE DERAIL.

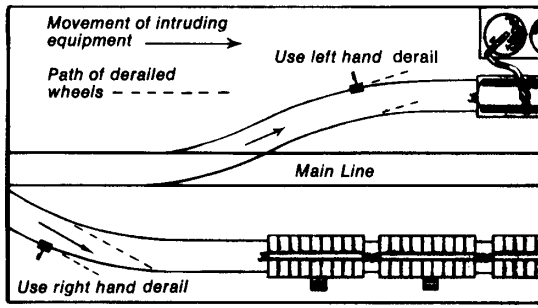


Figure 8 - Movement of Intruding Equipment, Path of Derailed Wheels

4.2 Positioning the Derail Relative to The Rail

Figure 9 shows a correct installation. The derail is positioned so that its horizontal flanges are on the same plane as the rail base, and the rail height and derail size agree.

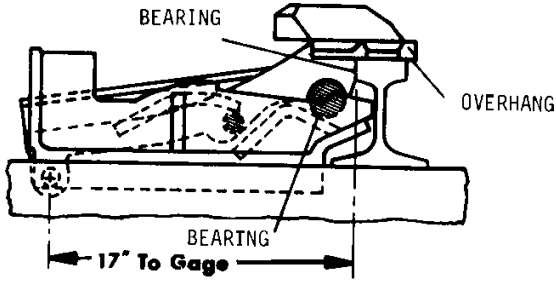


Figure 9 - HB Size 6 on 6" Rail
CORRECT For Installing Without Tie Plates

Figure 10 is correct when a tie plate is used. Shim under the derail so that the height of derail and shim equals the height of rail and tie plate.

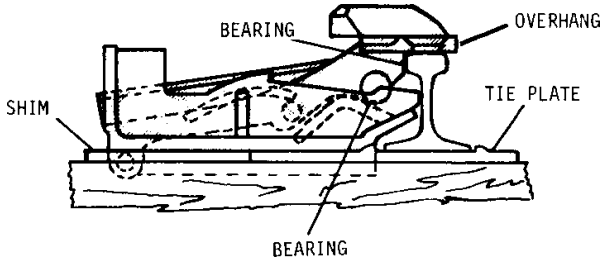


Figure 10 - HB CORRECT For Installing
With Tie Plates

Figure 11 is not correct. The derail shoe does not properly cover the rail head. This is the condition that can result from using a tie plate under the rail without matching shims under the derail, even though the rail height and derail size agree.

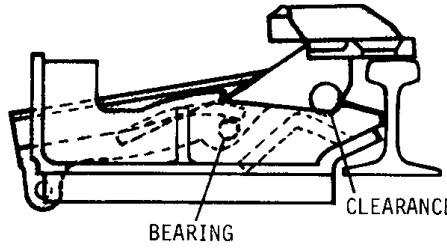


Figure 11 - HB Size 6 on 6-1/2" Rail
INCORRECT: Rail Higher Than
Size of Derail

Figure 12 also is not correct. This faulty installation puts undue strain on the shoe and can result in a broken shoe or a distorted block. Furthermore, this prevents proper seating on the rail and can cause the derail to be dislodged from the track.

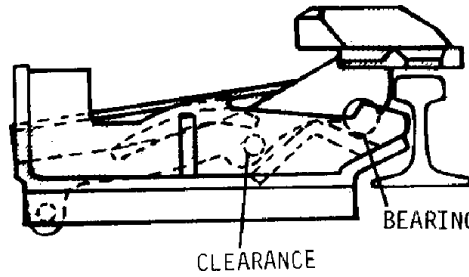


Figure 12 - HB Size 6 on 5-1/2" Rail
INCORRECT: Rail Lower Than
Size of Rail

4.3 Putting The Derail In Track.

After site, size and direction of the derail have been determined, lay the derail in place. Shove the front of the guide box against the web of the rail and fasten the guide box to the ties.

The derail block, when on the rail, must fully cover the head of the rail to insure derailing. (Note Figures 9 and 10 regarding overhang.)

If the derail has been correctly placed, the derail block will drop neatly onto the top of the rail at the end of the forward stroke. The weight of a wheel on the derail will then be carried through the derail block directly to the rail and ties.

The derail block cannot move off the rail horizontally. It cannot leave the rail except by raising above it at the same time.

If the derail block does not fit the rail head in this way, the position of the guide box with reference to the rail must be adjusted. It may be found that the surface on which the derail is secured is not the required distance below the top ot the rail; or the front of the guide box may not be against the web of the rail (Note Figure 13).

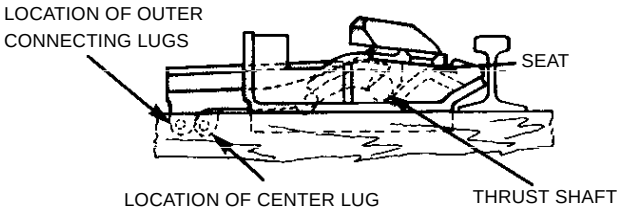


Figure 13 - Model HB
Showing Connecting Lugs

4.4 Data Concerning Adjustment of Vertical Height

Example: You have a Size 6 Derail (from nameplate). VERTICAL DISTANCE is 6-1/2". (5-3/4" high rail on a 3/4" tie plate). Derail, sitting on ties, will be 1/2" too low. You may either A) Shim up the derail 1/2" with steel shims, or B) Remove the tie plates under the rail and adz the ties 1/4" under the Derail. Either method will make the distance from the TOP OF RAIL TO TOP OF TIE (where the derail sits) the same number of inches as size number of Derail. **THIS IS A MUST.** See Figure 16.

Example: You have a Size 6 Derail (from nameplate). VERTICAL DISTANCE is 5-1/2". (5-1/2" high rail directly on ties--no tie plates.) Derail, sitting on ties, will be 1/2" too HIGH. You may either: A) Shim up the running rail 1/2" with steel shim, or B) Adz the ties 1/2" under the Derail. Either method will make the distance from TOP OF RAIL TO TOP OF TIE (where the derail sits) the same number of inches as size number of Derail. **THIS IS A MUST.** See Figure 14.

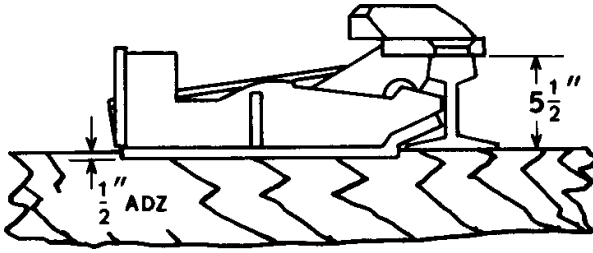


Figure 14 - Size 6 Derail Correctly Installed on 5-1/2" Rail

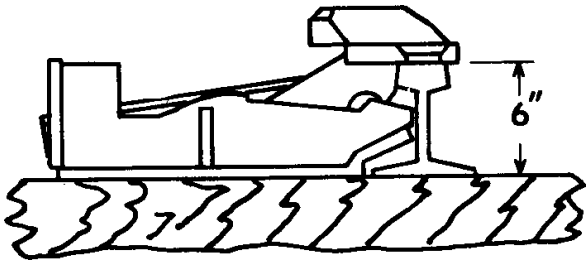


Figure 15 - Size 6 Derail Correctly
Installed on 6" Rail

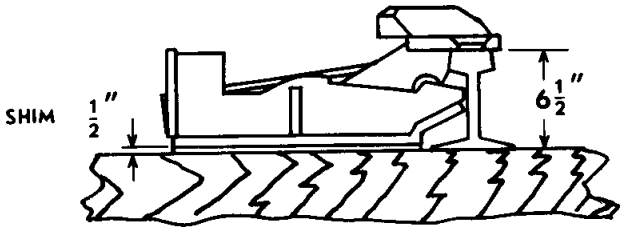


Figure 16 - Size 6 Derail Correctly
Installed on 6-1/2" Rail

4.5 Making The Derail A Fixed Part of The Track

Note: Follow the plan as shown in Figure 17. The derail guide box is provided with vertical and horizontal flanges adapted to bear against the sides and tops of the ties; these areas of the ties should be surfaced to give a good bearing for each of the flanges of the guide box.

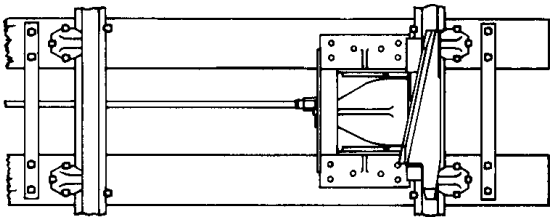


Figure 17 - Model HB Derail In Track

By placing rail braces outside both rails on the derail ties, the rails will be held to gauge and in correct position relative to the derail.

Straps spiked at the outer ends of the ties will hold the ties in correct relative position.

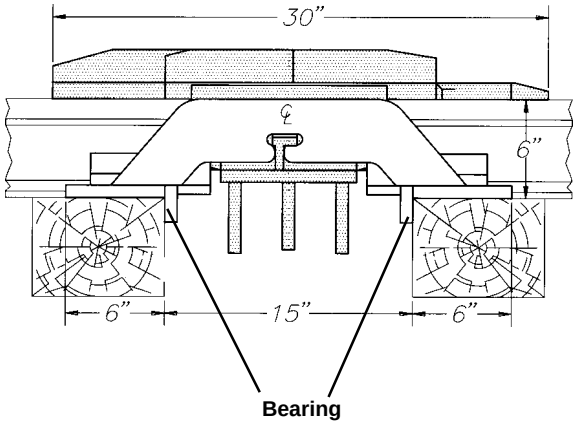


Figure 18 - Model HB

The ties should be spaced so that the derail vertical flanges will bear against them (See Figure 18).

The horizontal flanges have holes 31/32" diameter. These will accommodate 5/8" square track spikes or lag screws up to 15/16" diameter. All of these openings should be used so that the derail may be firmly afixed to the ties.

4.6 Operating or Indicating Connections to Derail

Models HB and HBX have three connecting lugs, 3/4" thick with 57/64" dia. holes, with one lug being offset. (See Figure 18) Operating and locking connections should be placed at right angles to the rail and in direct line with the movement of the derail block.

5.0 INSTALLING HINGE DERAILS (EB SERIES)

5.1 Basic instruction for HB Derails also apply to EB Series Derails, follow the previously mentioned requirements of location, size and direction of throw.

5.2 Set the derail in track with the derailing block down flat on the rail and position so that the vertical surface under the derail block just touches the gauge side of running rail.

Ties should be in good condition and spaced (12") to bear against the vertical flanges of the derail guide box. The ties should be tamped thoroughly to provide a good bearing under the running rail. The derail should be secured to the ties with six spikes or lag screws fully driven.

The derail block should come down flat onto the top of the rail; it will do this if the derail is correctly placed. Also, the block should fully cover the head of the rail to insure derailing. The shoe is designed for a 1/2" overhang with 3" head width, smaller width heads should have correspondingly increased overhang.

6.0 INSTALLING HAYES PORTABLE DERAIL MODEL TS

Place derail with graduated teeth against tie or tie plate on gauge side of rail. Adjust set screws on field side of derail to light bearing under rail head, derail shoe to sit level, tighten jam nuts. See Figure 19.

Hand tighten screw handle to secure derail to rail head. Do not overtighten; hand tight only. See Figure 20 for correct placement. Align holes under handle for applying padlock. Position flag for warning. Note: The handle clamp is for security so derail is held in position and a lock is inserted. It is not for retarding linear movement.

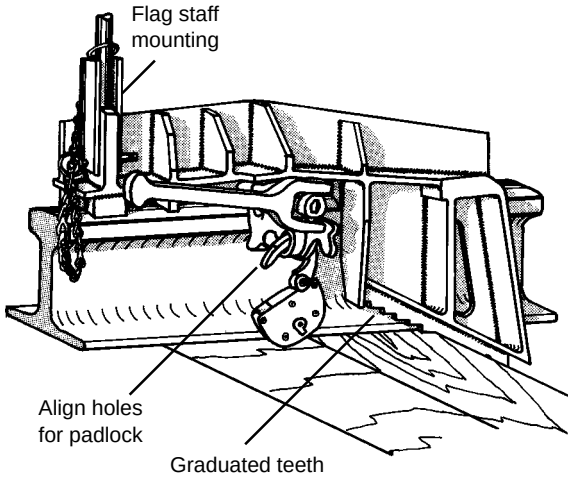


Figure 19 - TS Derail

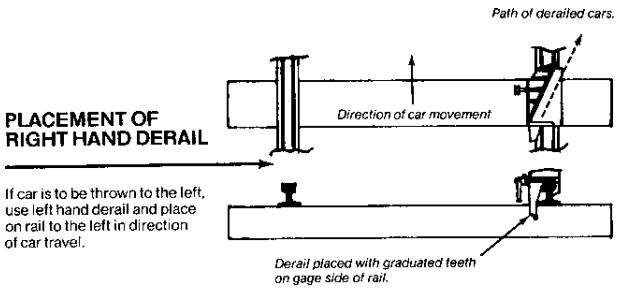


Figure 20 - Placement of TS Derail

7.0 INSTALLING HAYES FIELD SIDE DERAIL (MODEL KA)
Install according to instructions provided with the unit.

8.0 DERAIL OPERATING STANDS

8.1 Two-Tie Operating Stand & Parts Figure 21 shows the operating stand. It is made to throw any Hayes Sliding Derail. Operating stands cannot be used with Hinge Derails. All Operating Stands can be padlocked.

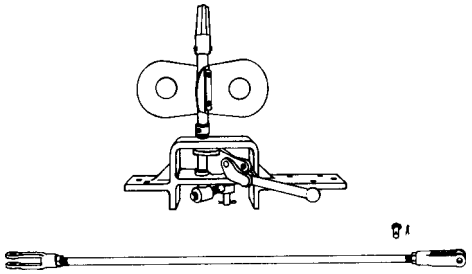


Figure 21 - Two Tie Operating Stand & Parts

The Two-Tie Operating Stand has no gears; the parts are few and everything is in sight. All parts are steel except the lamp tip which is cast iron. The eyebolt is threaded to provide adjustment for the throw of a Hayes Sliding Derail. The lever opens and closes the derail and turns the vanes through a right angle; it may be locked with the derail either on or off rail. The connecting rod has an adjustable screw jaw on each end and 7/8" turn pins.

Unless specified otherwise, our standard will use a rod length to locate the center of lamp staff 3 feet 6 inches from gauge. Lamp tip will conform to AAR standard lamp socket. Weight 90 lbs.

8.2 The One-Tie Operating Stand shown below is the same in construction and operation except that it requires only one tie as a support. Weight with connecting rod is 63 lbs.

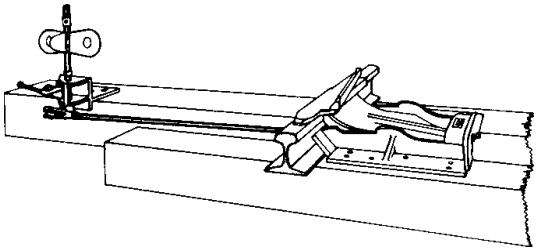


Figure 22 - One Tie Operating Stand

8.3 The Close-Coupled Operating Stand, Figure 23, is the same in construction and functions as our regular Operating Stand except long ties are not required. The staff is cut off 1/2" above base forging, vanes and lamp tip are not used due to closeness of stand to rail to provide standard clearance. Connecting rod is 37" long. Weight with connecting rod is 76 lbs.

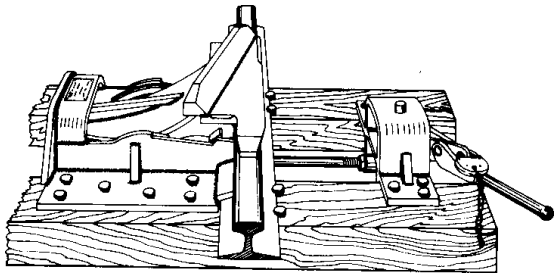


Figure 23 - Operating Stand Close Coupled to Model HB

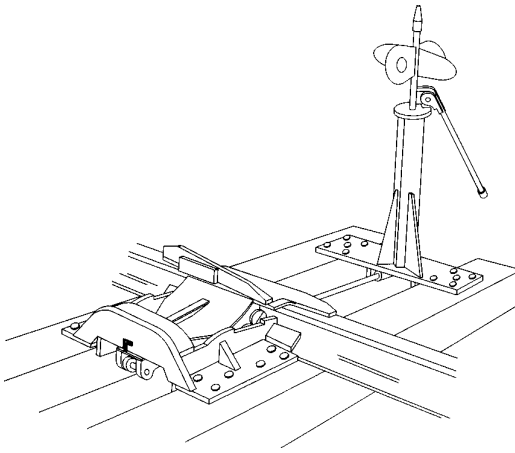


Figure 24 - HB Sliding Derail with
High Rise Operating Stand

8.4 HIGH RISE OPERATING STAND

Ergonomic design allows movement of sliding derail with out bending or stooping. The handle is 34 inches above the top of tie and the stroke adjusts for any sliding derail. The stand can be padlocked in both on and off rail position. Target vanes are red and white (unless other colors are specified)14 gauge steel.

8.5 Installing An Operating Stand With
Hayes Sliding Derails

Install the derail according to instructions. Pin the connecting rod to the stand eyebolt and to the center derail lug. With the lever in the left notch facing the rail and the derail block on the rail, fasten the stand to the ties. Adjust the eyebolt to give the correct stroke. Adjust the screw jaws for length of the connecting rod. Rod length does not affect the stroke. Eyebolt length changes stroke of derail.

9.0 DERAIL TARGET STAND

9.1 The Target Stand, See Figure 25, may be used with any Hayes Sliding or Hinged Derail to indicate whether the derail is on or off the rail, but it cannot be used to operate the derail.

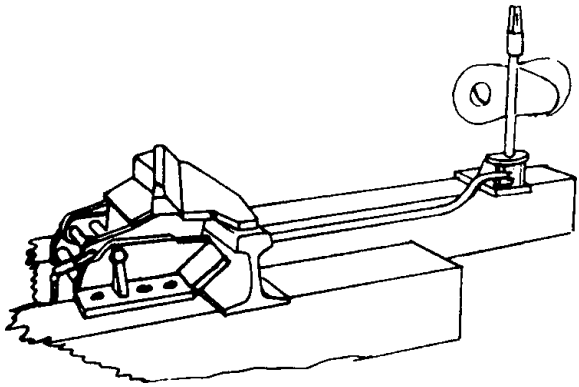


Figure 25 - EB Hinged Derail With
Target Stand

9.2 Operation

The movement of the derail block on and off the rail is transmitted through the connecting rod and turns the lamp staff through a right angle; the standard connecting rod places the center of lamp staff 3 feet 6 inches from gauge. The complete stand with connecting rod weighs 35 lbs. Unless otherwise specified banners will be provided red to denote on-rail and white to denote off-rail. Lamp tip will conform to AAR standard lamp socket.

9.3 Installing A Target Stand With Hayes Sliding or Hinge Derail

Install the derail according to instructions and insert the connecting rod in the lug of the derail nearest the tie on which the Target Stand will be mounted. Insert the end of the connecting rod in the crank. Holding the Target Stand on the tie, throw the derail block back and forth and adjust the eyebolt to turn the vanes through a right angle; then fasten the stand to the tie. Be certain when looking down the track only one color is visible when derail is fully on or off rail.

10.0 WESTERN-CULLEN-HAYES WHEEL CROWDER (Patented)

The Wheel Crowder is a device designed to assist the functioning of derails under unusual conditions such as location on inside rail of curves and on descending grades. It is designed for use with our Model HB and EB Derails. When used with Model HB the derail and Wheel Crowder may be moved into or out of the working position by a hand operated stand or Delectric derail operator subject to remote or local control. When used with Model EB Hinge Derail, the Wheel Crowder is moved into or out of the working position when the derail block is thrown over in a vertical semi-circle on or off the rail by hand.

A Wheel Crowder consists of two pieces; a complete Crowder and one rod which attaches to the derail. Before installing, read nameplate on Crowder to be sure Crowder is correct for derail being used. A crowder for hinge derails will not work with sliding derails and a Crowder for sliding derails will not work with hinge derails.

Nameplate also indicates size and right or left hand. Size must correspond to size of derail being used. Also, a right hand Wheel Crowder must be used with a right hand derail; conversely with the left. The Wheel Crowder cannot be used with A double-end derail (two-way). Regarding size, use same instructions as to determining size given with the derail.

10.1 PUTTING THE WHEEL CROWDER IN TRACK WHEN USED WITH MODEL EB HINGE DERAIL

1. Place Crowder against gauge side of rail opposite derail. Be certain ties are at right angles to rail.

2. The vertical flanges on base of Wheel Crowder are same as derail, maintaining straight, parallel ties for correct installation.

3. Two bolt holes are provided, one at each end of Crowder, drill holes in rail to accommodate the bolts and tighten Crowder to web of rail. Use set screws at web to maintain proper point contact with rail. Use spikes or lag screws to securely hold the crowder in position.

4. With the derail and Crowder secured in place, attach connecting rod in the left hand lug of the derail, insert and spread cotter key.

5. Fit the connecting rod to the Crowder, adjust the turnbuckle to fit snug when derail is in the on-rail position and the crowder point is snug against gauge side. Insert pin and spread the cotter key.

6. Test your installation by positioning the derail to the off-rail position with very little physical effort. The Crowder should be in the non-derailing position.

7. Do not install a Wheel Crowder with a double-end derail (EBX, EBXF); use only a right or left hand derail. A Crowder accepts a wheel from one direction only, angles of deflection do not correspond with double-end derailers.

8. All moving parts should be well lubricated to insure ease of movement. Graphite should be used on sliding surfaces.

10.2 PUTTING THE WHEEL CROWDER IN TRACK WHEN USED WITH MODEL HB SLIDING DERAIL

1. Place the Wheel Crowder against gage side of rail opposite to which derail is located. Be certain ties are at right angles to rail.

2. The vertical flanges on base of Wheel Crowder are same as derail, maintaining straight, parallel ties for correct installation.

3. Two bolt holes are provided, one at each end of Crowder. Drill holes in rail to accommodate the bolts and tighten Crowder to web of rail. Use set screws at web to maintain proper point contact with rail. Use spikes or lag screws to securely hold the Crowder in position.

4. With derail and Crowder secured in place, first attach the connecting rod to the left lug on the derail, then connect the opposite end of the connecting rod with the turn-buckle into the reversing crank mechanism on the base of the Crowder.

5. Attach the connecting rod from the manual or electric operating mechanism that places Derail and Crowder in the on-rail or off-rail position to the turn-buckle on the operating stand, and the opposite end into the right hand lug on the Derail. Insert and spread all cotter keys in the connecting rods.

6. Do not install Wheel Crowder with double-end derail (HBX), use only right or left hand derails. A Crowder accepts a wheel from one direction only, angles of deflection do not correspond.

7. All moving parts should be well lubricated to insure ease of movement. Graphite should be used on all sliding surfaces.

10.3 ILLUSTRATIONS OF CORRECT AND INCORRECT INSTALLATIONS OF MODEL HB, AND MODEL EB DERAILS WITH WHEEL CROWDER

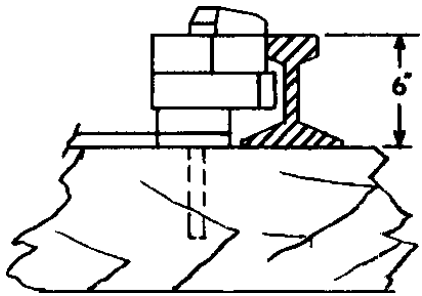


Figure 26 - CORRECT FIT

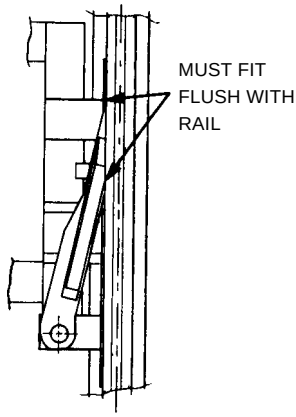


Figure 27 - CORRECT FIT- Must Fit Flush With Rail

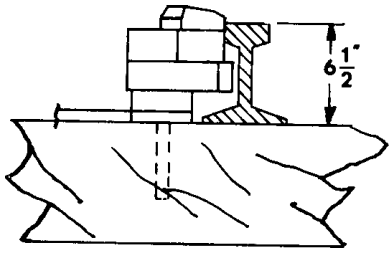


Figure 28 - INCORRECT - Wheel Crowder Put In Track Wrong, Wheel Crowder Size 6 on 6-1/2" Rail. Too Low For Rail. Wheel Can Damage Crowder.

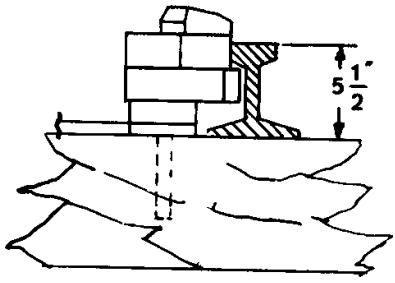


Figure 29 - INCORRECT - Wheel Crowder Size 6 on 5-1/2" Rail. Too High For Rail. Crowder Function Impaired.

11.0 INSPECTION AND MAINTENANCE OF PERMANENTLY INSTALLED DERAILS MODEL HB AND EB SERIES

11.1 Inspection Data Required

Derails should be given the same inspection and maintenance that other track and signal devices receive.

When anything happens at a derail which seems to reflect on the efficiency of the installation, the conditions at the derail should be examined and a record made by writing down the answers to the following questions:

1. Model and size of derail.
2. Actual height of rail, actual width of head of rail.
3. Is the derail on the outside rail or inside rail of a curve? About what degree is the curve? Is it on straight track?
4. What is the condition of the ties?
5. What is gauge of track at derail?
6. How far is the guide box away from the web of the rail?
7. What is the vertical distance from the top of the rail to the surface on which the derail is secured?
8. Are the ties and operating connections at right angles to the rail?
9. How is the derail fastened to the ties and are all holes in the horizontal tie flanges of the guide box used?
10. How many rail braces and tie plates are used on the derail ties?
11. Is the rail held firmly to the ties at the derail?
12. Are the ties well tamped up to a firm bearing?

13. Are the derail ties strapped together?

14. Do the bottom vertical flanges of the derail guide box bear against the sides of the ties?

15. Does the derail block at the heel end fully cover the head of the rail?

16. Has the derail been damaged in any way and if so, what result will it have on the function of the derail?

17. How is the derail operated? Is it well lubricated?

18. Give any other essential facts bearing on the location or condition of the derail.

If the analysis of an inspection as outlined above does not straighten out the matter, please send the record to us and we will be glad to assist you.

11.2 Explanation of Inspection Questions

A better understanding of the inspections can be gained if you read the explanation of each item listed here:

1. The model symbol and size number of the HB and EB Series Derails will be found on the nameplate. On derails installed previous to 1948, this will be found on the castings. The size number indicates the distance in inches down from the top of the rail to the surface on which the derail must be secured.

2. All derails shipped since 1949 (Models HB, HBP, HBX, HBXP and EB, EBX, and EBF, EBXF are suitable for rail up to 3" wide, but many models shipped previous to 1949 are for rail heads not more than 2-1/2" wide. These are cast derails Model A, AP, G, GP and D and in the interest of safe operations these models should be confined to light rail or they should be replaced with derails of the HB and EB series.

3. We do not recommend that a derail be placed on the inside rail of a curve. If local conditions force the use of a derail on the inside rail of a curve, we recommend the use of a WCH Wheel Crowder with a derail.

4. The two ties on which the derail is placed should be sound to insure holding the derail in position when a wheel encounters it.

5. If the gauge is wide, the flange of a wheel encountering the derail block may not enter the flange groove as it should. Proper widening on a curve is allowable if the derail is placed as shown, Figure 7, Point 4.1.

6. This refers to derails of the sliding type where the front of the guide box should be against the web of the rail. The exception would be with a rail head unusually wide compared with the thickness of the web; here it may be necessary to keep the guide box slightly away from the web of the rail so as to permit the derail block to come down flat onto the rail. This includes old style cast derails previous to 1948, Models G, J, H, HP, HX, HXP and the current all-steel derails Model HB, HBP, HBX, and HBXP. The derail block will then be held in place by its bearing against the rail and the seats in the guide box. The vertical front surface of the derail block in the hinge derail should be against the gauge of the rail; this includes cast hinge derails old style Models E, and EX and current Models EB, EBX and EBF.

7. The vertical distance from the top of the rail to the surface on which the derail is secured should be four inches with a size 4 derail, it should be five inches with a size 5 derail, it should be six inches with a size 6 derail, it should be seven inches with a size 7 derail. THIS IS AN ESSENTIAL REQUIREMENT.

If the derail is high the block will be held above the rail and the weight of a wheel striking it will not be carried direct to the rail and the derail may be damaged. If the derail is low the block will not lie flat on the rail and against the locking seats of the guide box. Place a straight edge across both rails and measure down at all four corners of the horizontal tie flanges of the guide box, measure to the under side of the tie flange which is the surface on which the derail is secured.

8. The ties should be at right angles to the rail to hold the derail in correct position. The operating connections should be at right angles to the rail so as to be in line with the movement of the derail block.

9. The guide box should be securely fastened to the ties by means of bolts, lag screws or spikes with the proper number inserted in bolt holes whether it is a derail of the HB or EB Series. The derail will then be held to its work.

10. The use of four rail braces or shoulder tie plates on the derail ties insures holding the rails in correct position, See Figure 9, Point 4.2.

11. The rail should be held firmly to the ties at the derail. This is just as essential as making the derail a fixed part of the track.

12. The ties should be tamped up to a firm bearing to hold the derail in correct position relative to the rail.

13. Strapping the derail ties together increases the stability of the installation.

14. The sides of the ties should bear against the vertical flanges on the guide box to take the thrust when a wheel strikes the derail.

15. It is essential that the derail block at the heel end fully covers the head of the rail and is held in that position by the seats in the guide box. If it does not, the position of the guide box relative to the rail should be examined. Or there may be insufficient stroke in the operating mechanism. If the derail block at its heel end does not fully cover the head of the rail, a wheel flange may catch on top of the rail after sliding off the derail block.

16. Long experience proves that a Hayes Derail, if properly installed, will take care of repeated derailments without being damaged unless it is struck when partly thrown or otherwise misused. A description of any wheel marks on the derail should be given.

17. A derail should be lubricated the same as other track and signal devices. See Figure 30, Sliding Derail Lubrication.

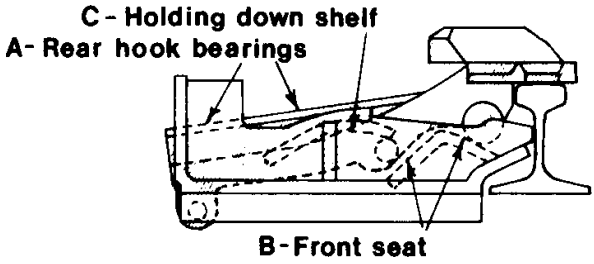


Figure 30 - Lubrication of Sliding Derail

A Sliding Derail should be lubricated with grease at the following locations:

A. Rear hook bearings; top, bottom and sides.
B. Front seat-top.
C. Holding down shelf-bottom.

18. If the inspection is made as the result of any particular occurrence at the derail, a full description should be given.

12.0 IN CONCLUSION

Changes brought about by laying heavy rail in place of light rail without upgrading the derail creates an unsafe condition. Derails not suitable for use on heavy rail are old-style Models A, G, GP, J and D. These are cast type derails and were made to cover rail heads not more than 2-1/2" wide. Current derails of the HB and EB series provide a 1/2" overhang of the derailing shoe beyond a 3" wide rail head.

Please ask us for any assistance you may need with your derails. We make it our business to help you get the best results from every Hayes Derail you have in track.

HAYES PLANT (Factory)
Western-Cullen-Hayes, Inc.
120 North 3rd St.
P. O. Box 756
Richmond, Indiana 47374
(765) 962-0526 • Fax (765) 966-5374

or GENERAL OFFICE
Western-Cullen-Hayes, Inc.
2700 West 36th Place
Chicago, Illinois 60632
(773) 254-9600 • Fax (773) 254-1110

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