

TRAIN PARTING



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WHAT IS TRAIN PARTING?

Train parting is unforeseen division of a train into two or more portions while the train is on run or just about to move. This is termed as “J” Class Accident



Types of Train Parting

Train parting is classified under two main heads.

1. Vertical parting takes place due to

- excessive CBC height variation. The main reasons for variation in CBC height are;
- Loose/ low rail joints
- Mud pumping under the rail joints. (a common problem to rail bed and is often depicted as the penetrating of fine materials through the ballast) under the rail joints
- CBC drooping– excessive wear and tear of coupler shanks and striker casting/ bearing piece.
- Excessive over loading in the wagons.

2. Horizontal Parting :- Horizontal train parting takes place due to following reasons:

- Uncoupling of CBC.
- Breakage/ wear of CBC components due to inherent defects. Failure of draft gear.
- Bad engineman ship

THE REASON OF TRAIN PARTING

- I. Operational reason
- II. Due to defective signal
- III. Poor Maintenance of P Way Track
- IV. Improper maintenance of rolling stock
- V. Failure on A/C of Commercial Department
- VI. Miscellaneous

Operational reason

- bad engineman ship by driver
- Brake binding due to emergency application of the brakes.
- Bad driving technique such as fast notching up of locomotive, sudden
- application of brakes, bad driving on gradient, improper road knowledge etc. Can also contribute to train parting.

Due to defective signal

Train parting mostly occurs on up gradient followed with down gradient. The most important location where the cases are more is near the home signal where drivers while starting from home signal after stopping are not ensuring releasing of brake resulted shock load on knuckles

Poor Maintenance of P Way Track

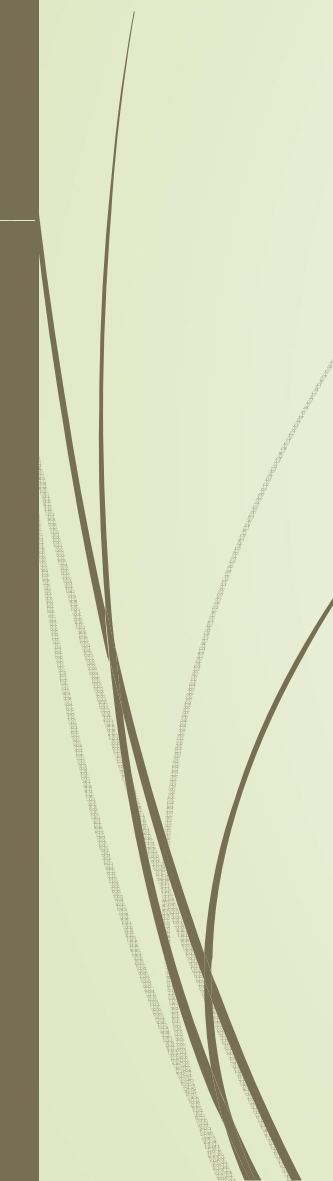
Analysis of section wise occurrence of train parting on railway indicates that bad section can be identified such as poor rail joints, mud accumulated track create uneven height with CBC coupler resulted train parting due to vertical slipping of knuckle and driver should be counselled for pre drive techniques.

Improper maintenance of rolling stock

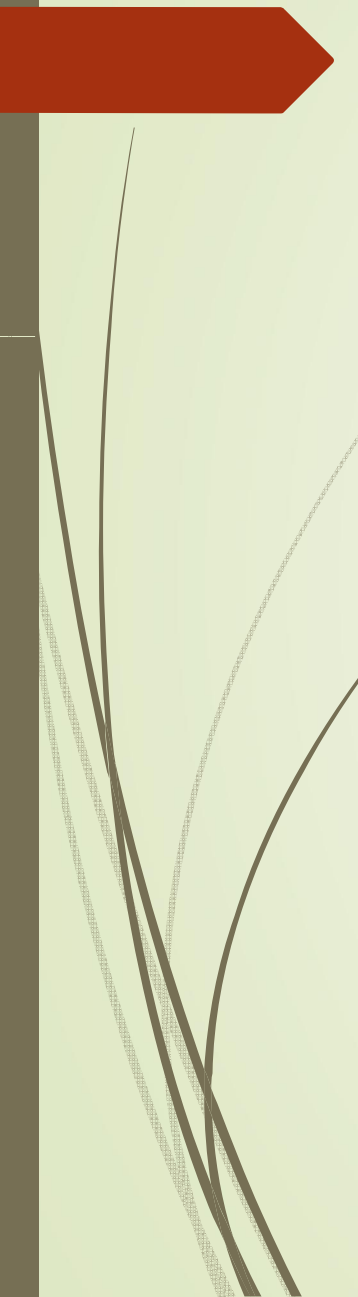
Train parting takes place in goods train due to following improper maintenance of rolling stock

Causes & their remedial action for AAR CBC:

<i>Sl. No.</i>	<i>Defects</i>	<i>Causes</i>	<i>Remedial Action</i>
<i>1.</i>	<i>Excessive wear of knuckle nose.</i>	<i>Improper maintenance.</i>	<i>CBC Knuckle nose wear gauge No.- 2 must be apply at any schedule of maintenance.</i>
<i>2.</i>	<i>Expansion of guard arm.</i>	<i>Ineffective anti-creep mechanism.</i>	<i>During ROH & other repairs it should be checked by CBC gauge No.- 2.</i>
<i>3.</i>	<i>Excessive CBC drooping.</i>	<i>Excessive wear on shank wear plate/ missing of shank wear plate.</i>	<i>It should be replaced in sick line & yard examination</i>
<i>4.</i>	<i>Cracks on Coupler Body.</i>	<i>Defective material/ Weak draft gear.</i>	<i>It should be replaced during POH & ROH</i>
<i>5.</i>	<i>Cracked knuckle</i>	<i>More Slack/ Weak draft gear.</i>	<i>It should be replaced during POH & ROH</i>



6.	<i>Bent operating handle.</i>	<i>Excessive projection of operating handle more than 75 °.</i>	<i>It should be checked and replaced by examining staff in sick line and yard.</i>
7.	<i>Dropping of Yoke pin support plate.</i>	<i>Loose & deficient rivets.</i>	<i>It should be secured properly by rivets</i>
8.	<i>Improper/ Partial locking of knuckles</i>	<i>Locking piece dislogged.</i>	<i>Ensure proper locking of knuckles by examining staff</i>
9.	<i>Breakage of front & rear stoppers.</i>	<i>Dead or weak draft gear.</i>	<i>Check the damaged draft gear.</i>
10.	<i>Deficiency of lock lifting components</i>	<i>Defective and bent operating gear.</i>	<i>Ensure that all the components lock lift assembly is intact.</i>
11.	<i>Excessive wear on the lock and knuckle at locking face.</i>	<i>Ineffective anti creep mechanism. Lock seat worn out or lug broken</i>	<i>During ROH & other repairs it should be checked by CBC gauge No.- 2.</i>
12.	<i>Stretched knuckle.</i>	<i>Defective or sudden draw and buffing forces.</i>	<i>During ROH & other repairs it should be checked by CBC gauge No.- 1.</i>



13.	<i>Dropping of the operating handle on run.</i>	<i>Improper securing of bearing piece.</i>	<i>It should be ensured at every attention by examining staff.</i>
14.	<i>Breakage of the operating lever support bracket</i>	<i>Bent/ Damaged operating lever and loose riveting of support plate.</i>	<i>Ensure proper riveting & bent lever to be replaced.</i>
15.	<i>Excessive wear of the yoke pin support plate.</i>	<i>Yoke pin hole elongated.</i>	<i>Check any excessive rubbing marks on the bottom of the yoke.</i>
16.	<i>Breakage/ Perished rubber pads in draft gear.</i>	<i>Excessive play in draft gear.</i>	<i>Proper attention during POH & ensure proper fitment of rubber pads & check for damaged draft gear by examining staff.</i>
17.	<i>Failure of anti-creep mechanism.</i>	<i>Excessive wear of CBC components.</i>	<i>Ensure all the components of CBC body/ lock lift assembly are intact.</i>
18.	<i>Self rotating CBC Operating Handle</i>	<i>Anti rotation lug not available or non standard. (Standard size 270 X 16 X 16mm). CBC operating handle bearing piece slot more wear and tear (Standard size 17.5 X 17.5 mm</i>	

Failure on A/C of Commercial Department

Over-Loading (Beyond carrying capacity) :

If any particular wagon is over-loaded beyond its carrying capacity will lead to difference in buffer height between two wagons (more than 75 mm), it may cause disengagement of knuckle in locked condition i.e. vertical slipping of knuckles.

Un-Even Loading: Due to un-even loading of any particular wagon it may lead to uneven CBC height on either end of the wagon & may cause in train parting.



Miscellaneous

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- Due to handling of operating handle by miscreant
 - Grazing of operating handle with platform while running

ACTION TO BE TAKEN BY THE FIELD STAFF

1. Parting of train takes place due to breakage of CBC or screw coupling during running of train. This is a dangerous situation for safety of trains therefore precaution to be taken by crew as mentioned below
 - I. **To keep away front portion of train running:** On noticing that train has parted, the driver of the train must try to take the front portion of the train as much ahead as possible. This may be done till the rear portion of the train comes to stop. This will avoid any chance of the collision in between both the portion of parted train. For taking ahead the front portion driver may take notches with the permissible amount of traction current.
 - II. **To stop rear portion of the train:** After noticing the train parting, Guard of the train will apply hand brakes to stop the rear portion of the train as soon as possible.
 - III. **Exchange of signal:** After noticing, Driver may confirm the train parting as follows
 - 1) Experiencing sudden drop of air pressure
 - 2) Looking back and finding out that the train is parted in two portions.

iv) **Re coupling of both portion of the train after stoppage of both portion of train:**

guard of the train should secure the rear portion of load by applying the hand brakes properly. After bringing both portions together the following step to be taken.

- Intimation to section controller about paring of train
- After coupling of both CBC's there should be no gap (lock should proper engage)
- Connection of air hoses and preparation of pressure
- Conduct continuity test.
- Start the train to reach up to next station
- Repeat the case to station master/SCOR in following details
 - Engine Number
 - Train load
 - Driver's & Guard's Name.
 - Location of wagon evolved in train parting.
 - BPC issuing station and date.
 - Kilometer on track.
 - Condition of gradient.
 - Train parting and load coupling time
 - Wagon particulars.
 - Probable cause of train parting etc.

v) **Clearing of load in two Portion:**

After parting of train if it is not possible to clear the load in one hook due to damage of CBC or its component, the parted load to be cleared in two portions. Front portion should be cleared by the driver up to next incoming station & rear portion can be attached and cleared with another engine after attaching with rear most wagons.



THANK YOU

