

1) Train parting:

A train means a number of rolling stocks with adequate brake power to control the train by Driver from Engine and Guard from Brake Van.

When the train is uncoupled and separated in parts while on run or at the time of starting or at the time of stopping, then the situation is called “ Train Parting “ and this incident is treated as accident.

Causes of parting:

- i) Sudden jerk and sudden application of brake by Driver / Guard.
- ii) Lack of co-ordination in between two Drivers when two locomotives are working in rising gradient.
- iii) After stopping, Driver starting the train without full release of brakes.
- iv) On rising gradient locomotive wheels slip due to bad weather when the sanders of loco are not working or due to non- availability of sand in sanders. This will cause sudden jerk on the train.
- v) Slack or loose coupling.
- vi) Flaw in material.
- vii) Reduction in cross- section of coupler body or any part of screw coupling.
- viii) Manufacturing defects in component like defective material, improper heat Treatment, blow holes or air inclusion in casting.
- ix) Improper securing of screw coupling with Draw bar.
- x) Working out of Transition coupling.
- xi) Improper fitment of CBC lock.
- xii) Working out of CBC head due to droppage of yoke pin.
- xiii) Breakage of yoke pin support plate.
- xiv) Breakage of CBC shank due to excessive wear.
- xv) Dropping down of CBC head.
- xvi) Breakage of knuckle improper locking of the knuckles, in effective anti creep Mechanism.
- xvii) Due to defect in lock and lock assembly of CBC, train parting is classified under two main heads.

Vertical Parting: - Vertical parting takes place due to excessive CBC height variation.

The main reasons for variation in CBC height are;

1. Loose/ low rail joints
2. Mud pumping under the rail joints
3. CBC drooping– excessive wear and tear of coupler shanks and striker casting/
Bearing piece.

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

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

xviii) **UNCOUPLING OF CBC:** The most common causes of train parting are, uncoupling of CBC on run (without any breakage of any parts), breakage of knuckle failure of draft gear & working out of CBC. The reasons of uncoupling and preventive measures taken to avoid uncoupling are described as under -

- 1) **Lock not properly engaged** – In most of the cases, the lock does not drop down to the full locked position inside the coupler head. This may result in slipping up of the lock during run causing uncoupling.
- 2) **Ineffective anti-creep device** – Lock may slip up due to jerking and jolting during run if the anti-creep feature is not effective.
- 3) **Operating handles dropping on run** - This is caused by breakage of supporting bracket resulting in operating handle falling down on run and hitting the ballast. This tends to turn the handle leading to lifting of the lock piece and uncoupling.
- 4) **Excessive play between anti–rotation lug and bearing piece slot:** Due to excessive play between anti-rotation lug and bearing piece slot, operating handle can operate on run due to jerks and can cause uncoupling. Anti-rotation lug is made out of square cross section MS bar with standard dimensions of 16 mm x 16 mm and slot width in bearing piece of 17.5 mm.
- 5) **Unauthorized tempering with operating handle** – This is believed to be a common incidence by many Railways. Since, uncoupling lever is situated alongside the wagon and is easily accessible, it is easily prone to unauthorized and mischievous manipulation.
- 6) **Uncoupling due to vertical slipping out of knuckle** - This may occur due to abnormal relative vertical movement between the two coupler heads causing slippage of one knuckle out of the other. This situation is very unlikely to arise but there may be a

possibility in the event of combination of number of adverse factors like maximum difference in coupler heights & unevenness on rail joints.

N.B. To avoid incidence of train parting special and meticulous attention should be given to draw gear components at originating station at the time of examination. Driver also should ensure that the sanders or locomotive are in working order with availability sand.

EFFECTS:

1. Safety hazard.
2. Detention to the affected train in the section and at station for clearing and attending or detouching the affected coach for repair.
3. Detention to coaches' other trains due to blockage of the section.
4. Loss of section capacity.
5. Detention to coaches for repairs at the station or to send the nearest sick line for repairs.
6. Loss of revenue to the Railway due to the coaches' days lost on account of the above.
7. Loss of power due to stoppage of the train, chunting etc.
8. Increase in the workload for the running and maintenance staff.
9. Additional cost of labour and materials for repairing the affected Coach/Wagon.
10. Inconvenience to the passengers, due to detention and late running of train.
11. Loss of passenger/customers on account of delay or non-punctual trip of goods.

REMEDIAL MEASURES TO AVOID TRAIN PARTING:

DRIVERS:-

1. Must allow adequate time for creation of vac N pressure and release of brakes before stating. Starting should be smooth and without jerks.
2. Avoid sudden and hares application of brakes except in emergency.
3. Sand gears must be in good working order to avoid engine slipping.

GUARDS:-

1. Before starting a train must ensure that all screw couplings are evenly and properly tightened.
2. Brake application from the brake vans should do so carefully not exceeding 1.2 kg/cm² drop at a time.

CONTROLLER AND STATION MASTER:-

1. Must not stop trains outside stations where there are rising gradients near the outer signal.

C&W and SICK LINE STAFF:-

1. Must ensure that draw bars and their components are free from all defects. Special attention should be paid to draw gear assembly to prevent excessive play.

2. Sufficient plain washers beyond the spring / pads and inside nut must be provided and tightened sufficiently to clear the cotter slot and correct size of cotter used and properly split to avoid slackening.
3. When the coaches are turned out from sick line, the wear on any section on the draw hook should not exceed 10 m m.
4. Wear on Broad Gauge screw coupling shackle pin, trunion nut pin, shackle link and draw hook hole shall not exceed 3 m m.
5. Buffer projection must not below the minimum length of 600 m m.
6. 12 Projection of draw bar hook shoulder must be within 92mm to 120 m m.
7. Repairs to draw bars, screw coupling and their components should be prohibited in sick line.
8. Screw couplings of coaches passing through sick lines should be oiled and eased.
9. Inspection of CBC coupler whilst/until fitted to coaches should be made to ensure that proper clearance is available to prevent interference.
10. Check correct working operation of knuckle thrower properly.
11. Check that coupler shank is not bent out of alignment with the head.
12. Ensured that clearance between the lock lift lever and the bottom of the CBC casing is not less than 19 mm.
13. Ensure that none of coupler, knuckle, yoke and draft gear components are cracked / broken / deficient.
14. Wearing of shank wear plate should be within 10 m m through and wearing on shank when wear plates not fitted should be within 6.5 mm.
15. Reclamation of knuckles in sick line / ROH depot should not be done.
16. Operating handle bracket should not be welded during ROH / POH; instead it should be secured with six rivets as per design.
17. Bearing piece with gap equal or more than the diameter of the operating handle should be made reject able item during POH / ROH.
18. Proper gauging of all the coupler components is to be ensured during POH & ROH.

SHOPS:-

1. Draw bar of all stock coming to work shops for repair must be in variably examined for wear on the hook neck, shank and screwed portion for the cracks.
2. Screw coupling should be tested to the specified proof load test.
3. Head stock and alied components should be checked for corrosion and to be rectified accordingly.
4. Hot working or welding repair to enhance capacity draw gear and screw coupling should be prohibited.
5. All CBC & draft gear must be removed from wagon and detailed inspection therefore should be ensured with specified gauges.
6. All new screw coupling and draw gear components to be proof load tested prior fitment to coach.

Yard staff

- Don't shunt with loose coupling.
- Don't allow spare coupling to hang loose. Put it on suspension hook.
- Both knuckle to be kept open and in centralized position during hump shunting.
- Don't shunt screw coupling stock over CBC stock or via- versa.
- Don't allow empty wagon in between two loaded wagons.

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