

SOUTH CENTRAL RAILWAY

Safety.387/Fly Leaf/08/2026

Fly Leaf No. 08/2026

Attention...

RULES & INSTRUCTIONS TO BE FOLLOWED SUBSEQUENT TO FREIGHT TRAIN

“TRAIN PARTING”

CAMTECH/ 2011-12/M/Train Parting/1.0, August – 2011 & RDSO's Lr.No.MW/CPL/BG/HT 27
November, 2024- Must change items of CBC and its components during ROH and POH of Wagons

About 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. “Train Parting” is an accident falling under the category of ‘Equipment Failure’ and classification ‘J’ of Accident Manual. There are many contributing factors towards train parting such as inadequate maintenance, material failure, improper driving & improper marshalling etc. Following are the consolidated summary of rules and regulations required to be followed by various designated staff based on the guidelines issued under **RDSO Instructions/Manuals, GR&SR 6.08, 2.11, Appendix II of G&SR, BWM and Accident Manual.**

A. Train parting is classified under two main heads.

- a. **Vertical Parting:** - Vertical parting takes place due to excessive CBC height variation. The main reasons for variation in CBC height are; Loose/ low rail joints
 - i. Mud pumping under the rail joints
 - ii. CBC drooping- excessive wear and tear of coupler shanks and striker casting/ bearing piece.
 - iii. Excessive over loading in the wagons.
- b. **Horizontal Parting:** - Horizontal train parting takes place due to following reasons:
 - i. Uncoupling of CBC.
 - ii. Breakage/ wear of CBC components due to inherent defects.
 - iii. Failure of draft gear.

B. Un-Coupling 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 and working out of CBC.

The reasons of uncoupling and preventive measures taken to avoid uncoupling are :

- a. **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.
- b. **Ineffective anti-creep device** – Lock may slip up due to jerking and jolting during run if the anti creep feature is not effective.

- c. **Operating handle 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.
- d. **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.
- e. **Unauthorized tampering 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.
- f. **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.

I. Guidelines for preventing CBC uncoupling in Freight Stock.

Required attention if not paid during POH, ROH and Yard examinations possibility of Parting of trains occurs. It is necessary to impart training to technicians on the subject matter in C&W BTCs. The following guidelines are given for ready references:

a) Operating Handle :

- i. The correct geometry of the operating handle is very essential. The operating handle should not be bent.
- ii. The lengths of the operating handle are different for different types of wagons. Hence appropriate Operating Handles are to be used as per the drawing.

b) Anti Rotation Lug:

- i. There should be no excessive wear in Anti rotation lug. The lug length and all the dimensions of the lugs are very important as there should not be any excessive play between the bearing piece and anti rotation lug. The standard section of the anti rotation lug is 16 mm x 16 mm.
- ii. The circular section on anti rotation lug should not be permitted at all.

c) Bearing Piece Slot:

- i. There should not be any excessive wear in the bearing piece slot. The standard width of the slot is 17.5 mm.
- ii. The bearing piece pin should be properly welded to hanger bracket.

d) Articulated Lock Lift Assembly:

- i. The components of Lock Lift Assembly such as toggle, lever connector and lever hook should be properly riveted.
- ii. Ensure that anti creep lug of the lever connector is not excessively worn out. There is no gauge specified for measuring the wear. However it should be checked with worn sample which can serve as a comparator.

- iii. The distance between the bottom of the CBC head and auxiliary anti creep lug should not be excessive. The standard distance is not less than 19 mm.

e) Knuckles

- i. Ensure that the knuckles are not excessively worn out. The knuckle should be checked with contour gauge No.3. There is no gauge specified for measuring the surface wear in the location of CBC Lock seating area.
- ii. The standard width at the tip is 18 mm. if the wear is more than 8.5 mm, knuckle should be rejected.
- iii. The knuckle pin should be secured properly from both top and bottom by welding APD.

f) CBC Lock

- i. Most of the uncoupling cases are taking place because of the worn out lock piece. The wears are taking place on the side walls, matting walls of the coupler body and bottom surface matting with the knuckles. The checking of the wears should be done with standard gauge. However, worn out lock should be kept as a comparator for ready reference for rejecting the material.

g) Coupler Body

- i. The Guard arm expansion should be checked with contour gauge No. 1 & 2 (Go-No-go gauge).
- ii. The condition of the shank wear plate should be checked. The wear should not be more than 5 mm. new thickness is 6 mm.
- iii. Variation between the CBC heights of adjacent wagons should be within the permissible limit of 75 mm.

II. Engineman Ship

The main reason for breakage of coupling is jerk due to excessive tractive effort, pulling forces & pushing forces. The reasons of jerk are spring slack & free slack. Spring slack is occurs due to compression of Draft gear at the time of braking. The limit of maximum spring slack is 5", the free slack occurs due to excessive gap between couplers which is approx. 1".

A. The jerk is developed –

- a. By drivers during run due to improper driving technique
- b. Due to defect in loco such as wheel slip, Power Ground earth fault or shutting down of engine due to other reasons.
- c. Application of Brake by banker pilot or by Guard during running

B. Reasons of Generation of Jerk by Loco Pilot:

- a. Sudden opening of Throttle notches.
- b. Emergency Braking
- c. Traction Power Cutting off
- d. Faulty train operation on Gradient

A. Measures to Avoid Jerks:

I. At Level :

- a. Ensure that all couplings are correctly fitted. For this, push the train back for about half a wagon length so that all the couplings are coupled properly.
- b. Ensure that brakes of the train are fully released, for ensuring, time should be given for releasing the brakes. Sufficient B.P. pressure should be ensured and air flow indicator should be at constant position.
- c. Release the Loco brakes after waiting for 10 seconds after opening of throttle.

II. Up gradient:

- a. Release the train brakes before opening the throttle, Open 2-3 notches by throttle , Release Loco brakes
- b. On starting of train, open the throttle notch by notch precisely by keeping eye on needle of load meter.
- c. Reduce the throttle notches in case of wheel slipping.
- d. If Banker engine is attached, driver of Banker engine should first open notches.

III. Down Gradient :

- a. Release Loco Brakes
- b. Allow train to move forward and attain the desired speed
- c. Use dynamic Brakes if required

IV. On Sag

- a. Open the notches
- b. Release the loco Brakes and open 1-2 Notches
- c. When the full train comes in a stretch, advance the notches, one by one by observing load.

V. Undue lading Gradient :

- a. Open 1st Notch
- b. Release the Loco Brakes
- c. When train started, open second notch and when meter is stabilized, open the notches as desired.

VI. On Hump :

- a. Release train Brakes before opening of throttle
- b. Open 2-3 Notches by throttle
- c. Release Loco Brakes
- d. On starting of train, open the throttle precisely notch by notch observing needle of the load meter
- e. Reduce throttle notches when wheel slip experienced
- f. In case of banker engine, the banker driver should first open the notches

VII. On Run of Train :

- a. Open notches one by one
- b. To control the speed of the train by dynamic brake, apply air brake in train by A-9 for bunching the load.
- c. During Dynamic braking advance selector slowly and releasing should also be ensured slowly
- d. Reduce the notches on up gradient during wheel slip

- e. Sufficient releasing time must be ensured for full releasing of the load after application of brakes. Advance the throttle for increasing the speed only after full releasing of load
- f. Do not use loco brakes in running train
- g. Keep watch over the Air flow indicator during running
- h. Do not apply brakes suddenly
- i. Do not open notches suddenly
- j. Keep contact with Guard/banker Pilot on walkie talkie
- k. Running of train should be ensured properly on Gradients
- l. Do not use Loco brake in conjunction braking as far as possible during first brake application

VIII. At the time of Application of brake in train :

- a. Apply brakes properly
- b. After Dynamic braking, notches should be taken after suitable gap
- c. After stopping the train, B.P. Pressure recreation must be ensured.
- d. On up gradient, try to stop the train on some notches and after stopping of train apply loco brakes.
- e. Apply loco brakes after stopping the train

B. Measures to avoid Train Parting by Loco Pilot:

The Loco Pilots have an important role to play in preventing the train parting cases. Good driving skill is very important. Some of the guidelines useful for drivers are given as under:

- ✚ It is observed that additional shock load comes on the coupler when drivers apply traction before full release of brakes.
- ✚ Starting of goods train after stopping-wait for minimum 3 minutes in case of air brake train to release the brakes. (Ref. RDSO's Report No. MP.Misc-88/99 REV-0.01)
- ✚ Avoid jerky movement during starting and stopping train.
- ✚ While attaching the loco on to the formation, attach with a little bump and push the formation back by about two meters to ensure that partially lifted locks drop into position. Then, pull the train ahead by half-a wagon length, to identify the CBCs which are not locked. In the process, fouling mark should not be infringed.
- ✚ While starting a train, the notching up shall be gradual as to have smooth run out and thereby avoid the shock loading of CBCs.
- ✚ At enroute stations , LC gates, signals etc when the train is stopped for longer time the driver shall push back the train about two meters to ensure proper locking of CBCs which, might have been meddled with by trespassers/miscreants
- ✚ While negotiating gradients, camel humps, maintain uniform speed, till the train passes the section.
- ✚ Before negotiating and ascending or descending gradients, attain the critical speed necessary to negotiate the section, so that uniform speed can be maintained while passing over the graded section
- ✚ After application of brake, sufficient time shall be given for the release of brakes on the entire formation, before accelerating.
- ✚ When continuous wheel slip is experienced, reduce the speed of the train, to avoid shock loading of CBCs.
- ✚ There shall be proper co-ordination between the leading driver and banker driver while negotiating the up-gradient in ghat section.

C. ATTENTION DURING TRAIN EXAMINATION AT YARD , ROH & POH

I. Attention during Yard Examination:

- a. The operating handle should not be bent and should be properly held in the bearing piece.
- b. Ensure the correct geometry of operating handle.
- c. Ensure that there is no excessive wear in anti rotating lug, the standard section of anti rotation lug is 16 mm x 16 mm. Anti rotation lug should not be round.
- d. Ensure that there is no excessive wear in the slot provided in bearing piece. The standard width of slot is 17.5 mm.
- e. There should be no excessive play between anti rotation lug and slot provided in bearing piece.
- f. Ensure that the bearing piece pin is properly welded to hanger bracket.
- g. Ensure that the hook end of operating handle is properly engaged with lock lift lever connector.
- h. Ensure that all the components of lock lift assembly such as toggle lever connector and lever hook are properly riveted.
- i. Ensure that anti creep lug of lever connector is not excessively worn out.
- j. Ensure that the distance between the bottom of CBC head and anti creep lug is not excessive (should not be more than 1").
- k. Ensure that the variation between the CBC heights of adjacent wagons is within the permissible limit of 75 mm.
- l. Ensure that knuckles are good, pin is standard and properly secured.
- m. Ensure that the CBC projection is within permissible limits of 108 + 25 mm.
- n. Ensure that proper additional operating handle safety bracket is properly welded.
- o. Ensure that auxiliary anti-creep lug was not excessively worn out at tip.
- p. Check condition of yoke pin support plate and condition of rivets.
- q. Check coupler head, knuckle for cracks. xviii) Check yoke pin support plate is loose.
- r. Check broken yoke.
- s. Don't allow jammed pistons or brake binding, attend it before dispatch.
- t. Do ensure that the hand brakes are released. xxii) Check for cracks on the coupler body and knuckle.
- u. Don't allow excess wear on the knuckle.
- v. Don't lubricate or paint any of the CBC components.
- w. Check the rear stopper for damages.
- x. Check for damages of draft gear.

II. Attention during ROH

Freight stocks are generally subjected to routine overhauling "ROH" after an interval of 18 months. Various worn out CBC parts are to be replaced during ROH. Following areas needs to be looked into during ROH

- a. Check CBC contour condition by using gauge No.1 & 2 and follow the procedure for changing the defective parts as per technical leaflet G.76.
- b. Check knuckle stretch and nose wear by using gauge no.3 and replace the parts if necessary.
- c. Check the condition of shank wear plate, if the wear is more 5 mm replace the same and use M5 class of electrode only for welding.
- d. Check the condition of CBC draft gear, yoke lock, back and front stopper rivets, yoke pin support plate rivets, striker casting wear plates.
- e. Ensure correct CBC heights.
- f. Check the condition of knuckle pin, lock lift assembly, knuckle thrower etc.

- g. None of the Coupler components shall be lubricated.
- h. Do check the coupling for damages and replace if required.
- i. Do ensure the draw bar projection is within limits, and draw bar springs are tight.
- j. Provide all the components of the lock lifting assembly.
- k. Check for damaged or bent operating lever, rectify it.
- l. Check the anti creep mechanism, attend it if required.
- m. Check the shank and striker casting wearing plates, if wornout.
- n. Check the front and rear stoppers.
- o. Check for damaged draft gear.
- p. Check the yoke for excess wear or breakage.
- q. Don't allow excess free slack, attend properly.
- r. Test the cylinders, attend, if jammed.
- s. Weld properly the bearing piece safety strap.
- t. Check the securing of the bearing piece and rivets of the brackets.
- u. Don't use improper locks for CBCs, use the correct one.

III. Attention during POH

- a. CBC shall be removed from the wagon at every year.
- b. Proper checking of the knuckle by using requisite gauges and carry out replacement of worn out knuckles.
- c. Proper attention to draft gear during POH. Dead draft gears shall be replaced.
- d. Reclamation of knuckle is not permitted at all.
- e. Check the yoke for elongation of yoke pin holes and cracks if any. No reworking is permitted on yoke.
- f. Check the striker casting for wear and replace the wear plate with new one. Make sure that wear plate is marking contact with striker casting surface uniformly and use M-5 class electrode only for welding.
- g. Check the CBC shank wear plate for wear. Excessively worn wear plate shall be replaced with new one. Ensure that M5 class electrodes are used for welding.
- h. Cranks on the coupler body should not be repaired by any method like deposition of weld material. Similarly building up of worn surfaces such as pulling lugs, buffing shoulders, lock walls etc. are prohibited.
- i. The design travel of draft gear shall not be less than 50 mm in buff and combined draft and buff gear shall not exceed 165 mm.
- j. The draft gear shall be checked thoroughly during POH for any defect on account of poor design, material fault and bad workmanship as they are under warranty for a period of 54 months from the date of supply of 42 months from the date of commissioning whichever is earlier.
- k. Detailed inspection of all coupler component and draft gears also their reclamation to be undertaken.
- l. No painting or lubrication of coupler to be done during assembly. After removal, the coupler to be operated a few times to ensure free movement of components.
- m. Railway board ordered, not to reclaim any knuckle after December 2002
- n. After assembly of the coupler in wagon body, anti creep to be checked meticulously and in every case to ensure its proper functioning according to method.
- o. Free movement and articulation at the joints between the components of rotary lock lift gear to be ensured by proper riveting. No welding of joints to be restored to.
- p. Ensure that coupler height should be maintained as specified in IRCA part III, rule no.2.13.7 as excessive difference in two adjacent couplers would cause excessive wear and stress on knuckle.

IV. Operating Staff Role:

a) Attention by Operating and Yard Staff

- a. During shunting, keep both the knuckles in open position.
- b. Couple CBC stocks with a little bump.
- c. Ensure the knuckles are locked, after shunting.
- d. Marshal loaded stock in front and empty stock in rear always.
- e. Do not allow empty stock in between loaded stock.
- f. Do not exceed the tonnage of the train than the authorized limit.
- g. Reducing of train tonnage than the authorized limit may be considered during monsoon/bad weather on section where heavy wheel slip is experienced.
- h. If any CBC defect is noticed in front of C&W staff, immediately advise for its rectification, without delay.
- i. Avoid stopping of trains at unscheduled places, where cases of trespassing is possible.
- j. Take off signals well in advance for approach of the train.
- k. Avoid taking off or putting off signals, as soon as the train reaches the signals. 12. Avoid stopping the train at signals situated on up gradients.
- l. Do work the train with a free and relaxed mind
- m. Don't open and close throttle frequently.
- n. Do aware for the caution spot, and control your train well in advance
- o. Once train parting take place, keep the front portion in motion till the rear portion comes to a stop.
- p. On noticing any railway servant exhibiting green flag by day / white light by night as high and as low as possible vertically understand that they are informing about train parting.
- q. After ensuring the stoppage of rear portion, stop the front portion and then in consultation of Guard couple up both the formations and clear the section after conducting continuity test. If not able to couple up, divide the train.

ROLE OF SM (GR&SR 6.08, BWM):

1. When the SM notices a train running through the station is incomplete, he shall not exhibit stop hand signal; instead he should show Green flag /white light during day / night vertically as high and as low as possible (train parting/divided signal) to the GLP.
2. He may also shout on walkie-talkie and try to attract the attention of the train crew.
3. He shall give 000000 – 000 bell code to SM in rear (train divided signal) and 000000 – 00 bell code to SM in advance (train passed without tail board /lamp).
4. The SM shall not grant / obtain line clear for a train. In case of Podanur push-button tokenless block instrument on single line sections, he shall remove the 'shunt key' and prevent the SM in rear from taking line clear without his knowledge.
5. On double line / twin single line / multiple line sections, the SM shall ensure no train is entering on the adjacent unobstructed line.
6. If it is confirmed that there was a train parting and the parted vehicles have not reached either to his station or to the station in rear, the SM shall arrange to send a relief engine with T/A 602 authority after a lapse of 30 minutes more than the running time of the slowest Goods train which has to be calculated from the time of the receipt of the bell code 000000 – 000.
7. If the parted vehicle/s are closely following the front portion, the SM shall place 3 detonators on the line to attract the Guard's attention who may apply handbrakes in the BV and stop the second portion/s and also if possible, set the points to vacant line / siding.
8. The SM shall inform the occurrence to the SCOR, make red ink entry in the TSR and entry in the Station Diary.

ROLE OF LP (GR&SR 6.08):

1. The design of the braking system will ensure stoppage of both the portions.
2. However, as soon as the LP comes to know about train parting on run, if possible the LP should keep the front portion in motion till the rear portion comes to a halt to avoid possible collision. This does not mean that he can pass Gate Signal / IBS / Station Signal at 'on'; **in other words he has to obey the aspect of the signal.**
3. The LP shall alert the Guard and station staff by sounding the engine whistle code of one long, one short, one long, one short. If there is a banker engine, the LP of that banker engine shall apply the brake and stop the rear portion.
4. If both portions of the parted train has come to a halt and is possible to couple, the same shall be coupled up.
5. If not possible to couple the formation/s, the train can be worked as per 'divided train working' rules. **However, divided train working is not permitted for passenger carrying trains.**
6. If the train is running without Guard, the duties devolve on Guard is applicable to the LP.

ROLE OF GUARD (GR&SR 6.08):

1. On hearing the engine whistle code of one long, one short, one long, one short, he shall apply hand brake of the BV and ensure stopping of the second portion.
2. He shall exhibit the green flag / white light by day / night vertically as high and as low as possible to indicate train parting.
3. Once the rear portion is stopped, he shall protect both in front and rear as per GR 6.03.
4. After stopping of both the portions and is possible to couple up, the Guard shall jointly check along with the LP, the formation as per the VG including tonnage before restarting.

ROLE OF GATEMEN (Appendix II of G&SR):

1. On noticing a train parting, the Gateman shall never exhibit 'danger' signal.
2. Instead, he should show green flag / white light during day / night vertically as high and as low as possible to the train crew.
3. He should shout, whistle and attract the attention of the LP and Guard.
4. If there is sufficient time between two portions, he shall place 3 detonators to attract the Guard in the second portion.
5. Inform the SM on telephone about the unusual noticed.

ROLE OF ANY OTHER RAILWAY SERVANT (GR&SR 2.11):

1. On noticing a train parting, shall never exhibit 'danger' signal.
2. They should try to attract the attention of the crew by shouting and at the same time put both their hands together above their head and separate them smartly as an indication of train parting.

SAFETY ORGANISATION

SOUTH CENTRAL RAILWAY

Disclaimer :

It is clarified that the above content mentioned on the subject in this FLY Leaf is an extract from different manuals, RB's letters and other letters. The same to be read in conjunction with the original letter & other manuals / letters issued from time to time and does not supersede any existing provisions laid down by RDSO, Railway Board or Zonal Railways. This FLY Leaf is for guidance only and it is not a statutory document.