

Air Brake Rake testing procedure

(LHB coaches)

Presented By

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- On arrival of the rake on pit line, completely drain the AR tank (125 liters & 75 liters) of all the coaches by opening the drain cock, to remove the water in air.

- Initially, couple the BP hose of the test rig with the BP hose of the rake & then charge the BP pressure to 5.0 kg/cm². Keep the FP angle cock of both end power cars in close position.
- Check the FP gauge fitted in the power car, if the gauge does not show any pressure, the NRV of all the coaches are ok.
- If, FP gauge shows any pressure, the NRV of any coach in the rake is defective.
- In this condition, check the rake for NRV defective by taking the coaches in parts. NRV found defective in particular coach should be replaced.

- Open all the four cocks of rake, couple BP & FP hose pipe of test rig with the BP & FP hose pipe of the rake.
- Charge the BP & FP to 5.0 kg/cm² & 6.0 kg/cm² respectively.
- After building of pressure in BP & FP, disconnect the test rig BP & FP hose pipe from the rake hose pipes & open both the angle cocks, due to which air pressure will be exhausted in atmosphere & brake will be applied.
- Wait for 20 to 25 minutes.

- After 20 to 25 minutes, check the complete rake from one end. Note down the coach nos. found with release brake cylinder. Check whether, AR tank of the coach is charged or empty. If AR tanks found empty, write down Empty AR on the respective coach.
- If found charge, pull manual release of DV to check whether CR tank is charged / empty.
- If CR found empty, write down Empty CR on respective coach.
- With this, all the defects in the rake can be checked.

- Again, connect BP & FP hose pipe of the rake & test rig & then charge BP to 5.0 kg/cm² & FP to 6.0 kg/cm².
- Connect BP & FP gauges with dummy on free end of other power car.

- Check the BP & FP pressure gauges in front power car, BP pressure should show 5.0 kg/cm² & FP pressure should show 6.0 kg/cm².
- If there is any difference in any pressure, check by fitting master gauge if still the pressure is not showing 5.0 kg/cm² in BP & 6.0 kg/cm² in FP, check for leakage & attend.

- Close the BP & FP angle cock of test rig for 03 minutes.
- Monitor the leakage in both BP & FP.
- The leakage should not be more than 0.6 kg/cm² in 03 minutes.

- Attend the coaches in which AR empty & CR empty are found.
- Check the AR tank & pipe line from the back of the brake panel for leakage. Similarly, check CR tank & pipe line & dummy plug on the brake panel.
- If defect is still noticed after attending the leakage, than mark the coach sick for detailed investigation & single car testing in sick line.

- Start the pressure & charge the BP to 5.0 kg/cm² & FP to 6.0 kg/cm².
- Drop the BP pressure by 1.6 kg/cm², brake should apply in all coaches.
- Start the leakage checking with the help of soap solution from one end. During soap solution testing, check all the BP & FP hose pipe, all hose pipe connectors, Main pressure pipe line, Angle cocks, Brake cylinder pipe line, CDTS pipe line.
- Similarly, check & attend leakage in components on Brake panel like DV, FP & BP filter, NRV, all isolating cock, brake indicator, brake accelerator & brake cylinder with soap solution.

- Isolate the isolating cock on Brake panel & check all brake calipers & brake pad of all cylinders.
- In isolated condition, all brake pads should be released simultaneously.
- Similarly, on opening of isolating cock all Brake cylinder should operate & brakes should apply.

- Check the brake indicator when brakes are applied, indicator should display red colour.
- However, when the brakes are released from isolating cock the brake indicator should display green colour.
- If on brake release condition, brake indicator is not showing green or on brake applied condition brake indicator is not showing red, then the brake indicator is defective.
- Repair / replace the brake indicator.

- The BP & FP pressure gauges in the others end power car should show pressure 3.4 kg/cm² & 5.8 - 6.0 kg/cm² respectively.
- If any difference in above pressure is noticed that means there is any cross connection in BP & FP connection.
- Attend the same & ensure BP pressure 3.4 kg/cm² & FP pressure 5.8 - 6.0 kg/cm².

- Charge the BP & FP pressure to 5.0 kg/cm² & 6.0 kg/cm² respectively.
- Check the brake indicator of complete rake, all coaches should be in released condition.
- If any coach is not released, it means that the CR of that particular coach may be overcharged & there is an internal defect in DV.
- Mark the coach sick for detailed investigation.

- Check PEASD of at least 03 coaches.
- During PEASD checking, brakes should apply in
- all coaches & the brake accelerator should operate.
- Coach numbers should be noted in maintenance dairy.

- Now closed the pressure supply from the test rig. Operate the emergency guard van valve of front power car guard van.
- BP pressure should become 0.0 kg/cm² in approx. 25 to 30 sec in front power car & approx. 40 to 50 sec in rear power car.
- Open the pressure supply & charge BP & FP to 5.0 kg/cm² & 6.0 kg/cm² respectively.
- Now again closed the pressure supply from the test rig.

- Operate the emergency guard van valve of rear power car guard van.
- BP pressure should become 0.0 kg/cm² in approx. 25 to 30 sec in rear power car & approx. 40 to 50 sec in front power car.
- Check for any significant difference in time for dropage of BP pressure to 0.0 kg/cm² between front & rear power cars If any.
- There may be blockage in BP line of any coach.
- If found, attend the same.
- Continuity test of the rake is now completed.

- In both the power cars, check the condition & mounting of hand brake cables fitted on both the brake cylinders.
- Rotate the hand wheel fitted in guard van clockwise to apply the brakes, after full rotation brake should apply in both the brake cylinders & hand brake indicator should show red.
- Rotate the hand wheel anti clockwise, now brakes of both the cylinders should get release & hand brake indicator should show green.

- Charge the BP & FP to 5.0 kg/cm² & 6.0 kg/cm² respectively.
- Close the BP & FP angle cock of test rig for 03 minute.
- Monitor the leakage in both BP & FP. The leakage should not be more than 0.6 kg/cm² in 03 minutes.

- Isolate the isolating cock of BP & FP of the test rig & angle cock of BP & FP of the cock.
- Uncouple both hose pipes & open both the angle cocks of coach.
- After draining of pressure from both the BP & FP hose, release the complete rake by pulling the manual release handle of the DV of each coach & ensure the brake indicator of all coaches should display green colour.
- Ensure that all BP, FP & BC gauges fitted in power car are calibrated & showing correct reading.

Any Questions !!!

Thank You