

## SOUTH CENTRAL RAILWAY

Safety.387/Fly Leaf/08/2025

Fly Leaf No. 08 / 2025

Attention..... All Concerned .....

(As per LHB Maintenance Manual, Volume II – System Documentation, IRCAMTECH/GWL/MECH/2022-23/LHB/Manual/1.1, July'2022 and Chapter10. Maintenance schedule (Mech), Para: 10.14.2 & I.R.C.A Conference Rules PART- IV, Volume-II. LHB Document No. IRCAMTECH.M.GWL.IRCA-IV, August-2024. Annexure-II.C)

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### PROCEDURE FOR CHECKING CAPABILITY OF AIR BRAKE LOCOMOTIVES

With the Introduction of Air Braked Coaching stock on Indian Railway, It has become necessary to lay down detailed operating procedure for checking leakage rate in trains for testing charging capacity of locomotive to ensure that Locomotive is capable of supply adequate amount of air for charging Brake Pipe for Single Pipe and Both Brake Pipe and Feed Pipe for Twin Pipe working respectively. The detailed procedure for checking the Locomotive and Coaches fitted with Air Brake system.

Air Brake system of Indian Railways has been fitted with Twin Pipe Graduated application and release Brake system generally in conformity with UIC Standards.

**a) General Instructions to be followed before Conducting Loco Capability Test.**

- a. Ensure Proper working of Air Compressor in Loco.
- b. Ensure Loco all connecting line/pipe line joints are free from leakages.
- c. Ensure Pressure gauges (BP, FP & MR) in Loco Calibrated, and Zero error in readings.
- d. This test should be carried out on single locomotive if only one locomotive is used for hauling the train or on foremost Locomotive of consist of Locomotives unless otherwise stated.

**b) Necessary Tools & Plants.**

- a. Required nos. of Pressure Gauges with End Test Points and with connecting hose to be provided.
- b. Necessary Hand tools as per CAMTECH /2006/M/C/Tools/1.0, Dec'2006. Chapter-1, Para: 1.1 List of Hand Tools for Coach Maintenance (Fitter-Repair/Examination Staff at Train Passing & Chapter-1, Para: 1.2,) List of Hand Tools for Coach Maintenance (SSE/JE-in-charge/Tool Room) at Train Passing to be procured and used.

**c) Awareness Programmes.**

- a. Important Working Procedure/Working Instructions to be displayed/painted at convenient/ readable location.
- b. Necessary awareness programmes/classes/meetings to be conducted to update on latest modifications/guide lines/working procedures.

### Procedure for Checking Capability of Air Brake Locomotives.

S. No.	Type of Test	Procedure	Prescribe limit
1	<b>Locomotive Leak Test BP</b> (Brake Pipe)	<ul style="list-style-type: none"><li>➤ Close Loco BP (Brake Pipe) Angle cock. Create 5 kg/ cm<sup>2</sup>.</li><li>➤ Drop BP Pressure by 0.6 kg/cm<sup>2</sup>.</li><li>➤ Stabilized BP at 4.4 kg/cm<sup>2</sup>. Isolate lead &amp; trial cock.</li></ul>	Drop- not more than 0.7 kg/cm <sup>2</sup> in 5 min.
2	<b>Locomotive Leak Test FP</b> (Feed Pipe)	<ul style="list-style-type: none"><li>➤ Close Loco FP (Feed Pipe) Angle cock.</li><li>➤ Create 6 kg/cm<sup>2</sup>. Isolate Feed valve isolating cock.</li></ul>	Drop - not more than 0.7 kg/cm <sup>2</sup> in 5 min.
3	<b>Loco Capability Test</b>	<ul style="list-style-type: none"><li>➤ Close Loco BP &amp; FP Angle cock.</li><li>➤ Keep A- 9 valve in emergency position.</li><li>➤ Build up MR pressure to 8-10 kg/cm<sup>2</sup>.</li><li>➤ Couple 7.5 mm dia hole test coupler (RDSO-SK. DP-2691) with BP Coupling head of Loco on one side of the loco with</li></ul>	BP pressure should not fall below 4 kg/cm <sup>2</sup> within 60 seconds.

		the other COAC of BP being in closed condition. ➤ Charge BP pressure to 5 kg/cm <sup>2</sup> . Open BP angle cock.	
4	<b>Load (Formation) leakage BP</b>	➤ Ensure 5 kg/cm <sup>2</sup> BP pressure on loco & 4.8 kg/cm <sup>2</sup> in rear SLR. ➤ Reduce 1 kg/cm <sup>2</sup> BP pressure i.e., from 5 kg/cm <sup>2</sup> to 4 kg/cm <sup>2</sup> (stabilized) by A- 9 Valve application. ➤ Close BP isolating cock. ➤ Note BP pressure drop in 5 min.	Drop - not more than 1 kg/cm <sup>2</sup> in 5 min.
5	<b>Load (Formation) leakage FP</b>	➤ Ensure 6-kg/cm <sup>2</sup> FP pressure on loco & 5.8 kg/cm <sup>2</sup> in rear SLR. ➤ Close Feed valve isolating cock. ➤ Note FP pressure drop in 5 min.	Drop - not more than 1 kg/cm <sup>2</sup> in 5 min.

**1. Locomotive Leak Test BP (Brake Pipe).**

Charge or allow the Main Reservoir Pressure to build up to the maximum stipulated limits i.e. 8 kg/cm<sup>2</sup> to 10 kg/cm<sup>2</sup>. Close the Brake Pipe (BP) Cut off Angle Cock and allow charging the BP pressure to 5kg/cm<sup>2</sup>. After charging BP Pressure 5kg/cm<sup>2</sup>, drop BP pressure by 0.6kg/cm<sup>2</sup> by operating driver's automatic brake valve handle and stabilize the BP at 4.4kg/cm<sup>2</sup>, simultaneously isolate Lead & Trail Cock. Ensure that the Brake Pipe (BP) Pressure should not drop more than 0.7kg/cm<sup>2</sup> in 5min.

**2. Locomotive Leak Test FP (Feed Pipe).**

Close Loco FP (Feed Pipe) by Operating Angle Cock. Now create FP pressure 6kg/cm<sup>2</sup>. Isolate Feed Valve Isolating Cock. Ensure that the Feed Pipe (FP) Pressure should not drop more than 0.7kg/cm<sup>2</sup> in 5min.

**3. Locomotive Capability Test.**

Close the Loco BP & FP Cut Off Angle Cock. Couple 7.5mm diameter leak hole special test coupling fabricated to RDSO Drawing No.SK.DP-2691 with the brake pipe coupling of the locomotive. In case of MU consist, test coupling should be fitted on the rear most of the consist.

Keep the Driver's automatic Brake Valve or A-9 Valve handle in Emergency position. Build the Main Reservoir Pressure 8.0 kg/cm<sup>2</sup> to 10 kg/cm<sup>2</sup>. Charge BP (Brake Pipe) pressure to 5 kg/cm<sup>2</sup>. After ensuring BP pressure, Open BP angle cock. Ensure that the BP pressure with the help of gauge fitted in the Locomotive, which should not drop/fall below 4 kg/cm<sup>2</sup> within 60seconds. The test shall be carried out with all the compressors in working condition for operating the train.

**4. Load Leakage BP.**

Couple Locomotive & Formation BP Air Hoses. Ensure all Angle Cocks of formation in open position except rearmost of formation and Loco front Cut off Angle cocks and ensure that the 5kg/cm<sup>2</sup> BP Pressure in Locomotive and 4.8kg/cm<sup>2</sup> in Rear SLR/LSLRD/LWRRMADC. Reduce the 1kg/cm<sup>2</sup> BP pressure to 4kg/cm<sup>2</sup> (Stabilized) by operating A-9 Valve handle in to application position. Now close the BP isolating cock. Ensure that the BP pressure should not drop more than 1kg/cm<sup>2</sup> in 5min.

**5. Load Leakage FP.**

Couple Locomotive & Formation FP Air Hoses. Ensure all Angle Cocks of formation in open position except rearmost of formation and Loco front Cut off Angle cocks and ensure that the 6kg/cm<sup>2</sup> FP Pressure in Locomotive and 5.8kg/cm<sup>2</sup> in Rear SLR/LSLRD/LWRRMADC. Close the Feed valve isolating cock. Ensure that the FP pressure should not drop more than 1kg/cm<sup>2</sup> in 5min.

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