

# FIBA

**F**AILURE

**I**NDICATION CUM

**B**RAKE

**A**PPPLICATION

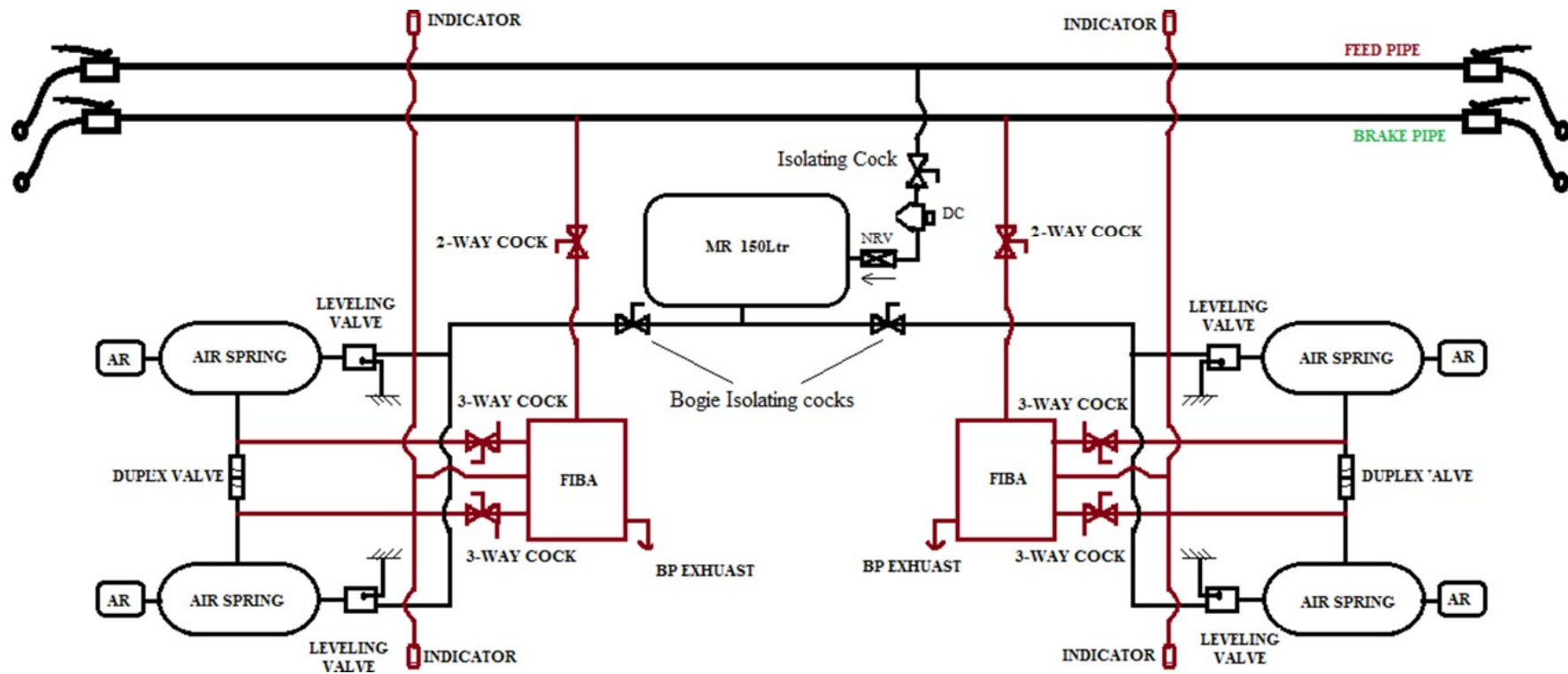
# Features & Function

- Failure Indication cum brake application device (FIBA) is provided on passenger coaches fitted with Air springs.
- One equipment per Bogie is required.
- The equipment is purely pneumatic.
- Have one sensor valve for each bellow on the bogie.
- Drops the brake pipe pressure resulting in brake application.
- It is capable of sensing the rupture and rapid exhaust of compressed air from any one bellow or both bellows in a bogie.

- As soon as pressure drop is detected below  $1 \pm 0.1 \text{ Kg/cm}^2$  in any one of two bellows or in both the bellows in the same bogie, the equipment initiates an exhausting of Brake pipe pressure.
- Provides audio (hissing sound) and visual indication (indicators on both side) to indicating bellow burst in a particular bogie.
- Isolating cock provided in the system to reset the equipment / stop BP exhaust. It enable to resume the journey at a lower cautions speed up to the destination.
- The performance of the equipment is identical either for an empty coach with the lowest level of the bellow or for a coach loaded to its full capacity with the maximum bellow pressure.

# SCHEMATIC DIAGRAM OF FIBA

(as per RDSO specification RDSO/2015/CG-05 Rev. nil)



# Knorr-Bremse make FIBA

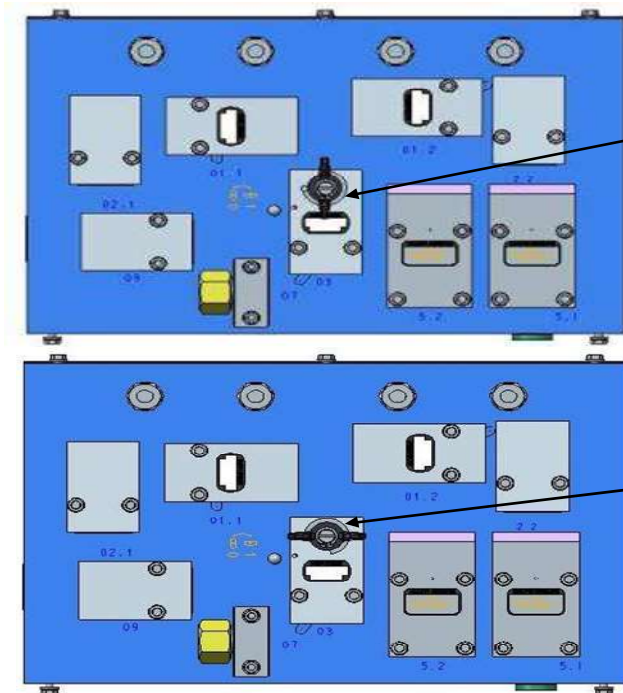


# Knorr-Bremse make



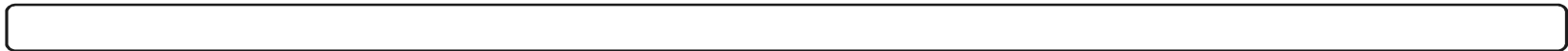
## **Position of Reset / Isolating cock**

ON position of Isolating cock/Reset



ON position of Isolating  
cock/Reset cock

OFF position of Isolating  
cock/Reset cock



# Faively Make FIBA





# Faively make FIBA device



# ESCORT MAKE FIBA



# ESCORT MAKE FIBA



## Knorr-Bremse



## Faively



## Escort



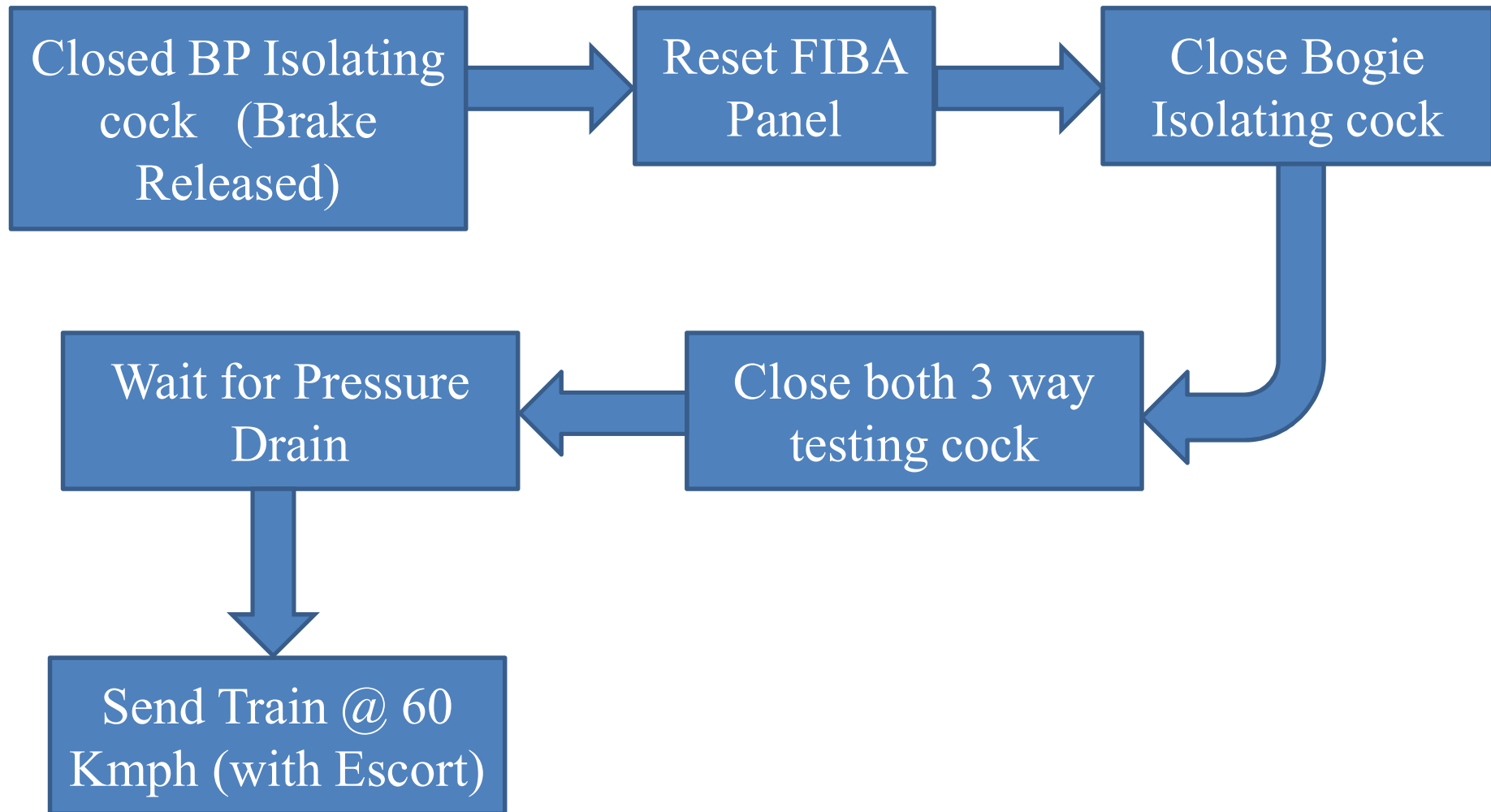
# Trouble shooting

Mode of trouble	Reason	Action by Depot / Workshop
1. After the actuation, FIBA device reset automatically by some time.	1. Leakage in pipe line from FIBA device to Brake Indicator.	Arrest the leakage in pipe line..
	2. Malfunctioning/leakage in the valve at the position no. (09).	Replacement / overhauling.
	3. Malfunctioning/leakage in Reset cock (03).	Replacement / overhauling.
	4. Leakage in 0.5L reservoir.	Arrest the leakage in reservoir.
2. FIBA device is not actuating at the specified bellow pressure i.e. $1 \pm 0.1$ Kg/cm <sup>2</sup>	1. Check the gauge for any error.	Replacement / overhauling.
	2. Valve at position no. (1.1 or 1.2) is not working properly.	
3. During the initial charging of coach, FIBA device activate by itself.	Valve at position no. (5.1) is malfunctioning.	Replacement / overhauling.

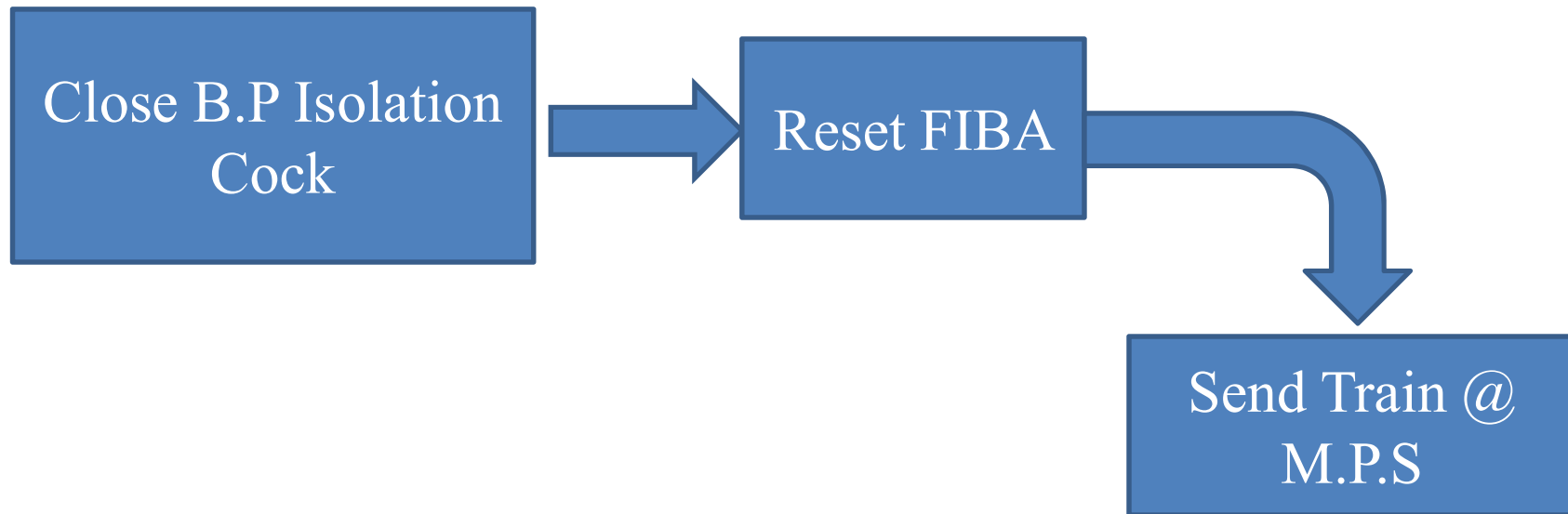
## Items to be checked During Rolling-In/Out Examination

- i) Indicators colour i.e. Red or Green to be checked . In case any indicator of FIBA device found Red, FIBA device of same should be examined thoroughly and suitable action to be taken .
- ii) Hissing sound or any major leakage from FIBA device to be observed .
- iii) Any hanging or loose parts, unusual sound from FIBA device or pipelines to be observed.

## IF AIR BELLOW IS PUNCTURED

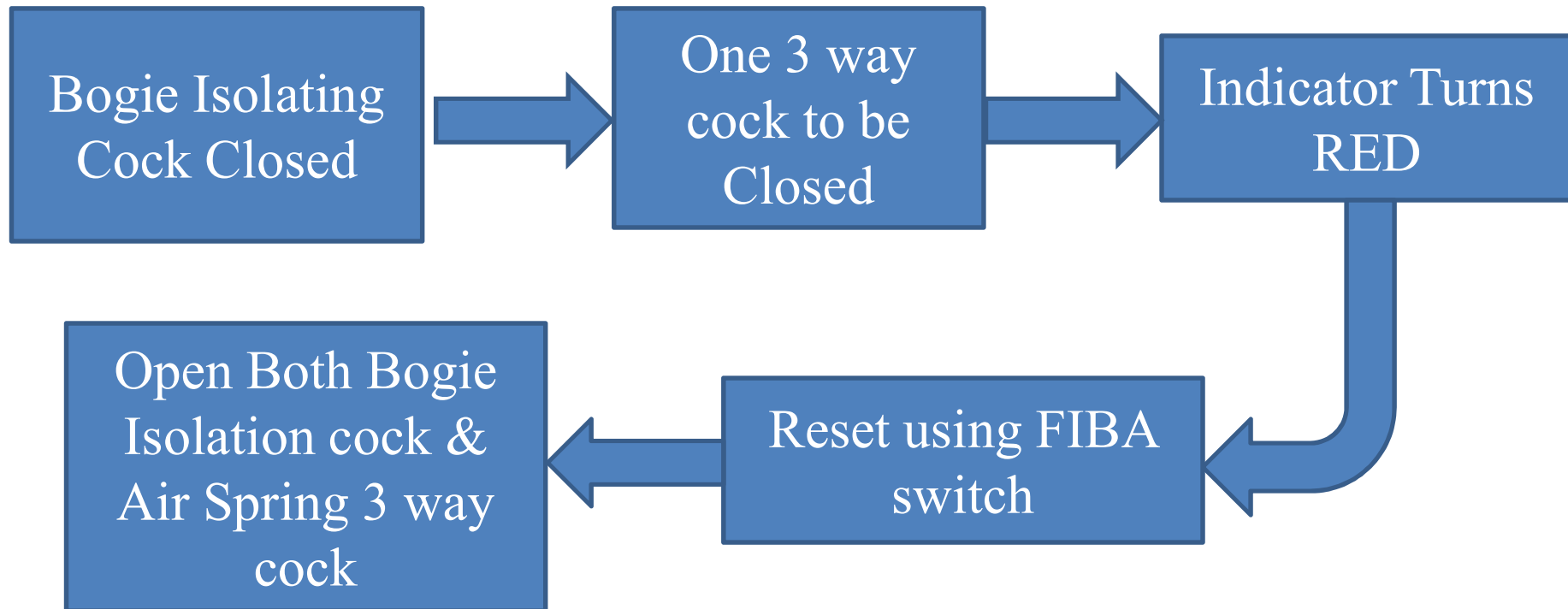


## If FIBA MALFUNCTIONS





## FIBA TESTING DURING PRIMARY MAINTENANCE



## Enroute attention in case of FIBA activation

- ❖ Identify the coach in which FIBA device is actuated .
- ❖ Note down the coach particulars and location of actuated FIBA device and report to C&W control for next course of action .
- ❖ Close the isolating cock provided in B.P line of actuated FIBA device. Brake will release in brake release position of the train. Hissing sound will stop .
- ❖ Close the both isolating cock with vent provided between FIBA device and air springs. FIBA device may or may not turn to green.
- ❖ Pull the resetting keys provided on FIBA device. Indicators of FIBA device will turn to green.
- ❖ Isolate the air springs of affected coach.
- ❖ Start the train and proceed upto next C&W point or destination with maximum speed of 60 Kmph.

## POINTS TO BE OBSERVED

- Check all ferrule joints and flexible pipes for leakage/looseness.
- Closely check leakage from Air Springs
- Air Spring height must be within 289-294mm. In case of a difference in height, adjust using installation lever.
- FIBA Testing must be performed during Primary Maintenance in depots.

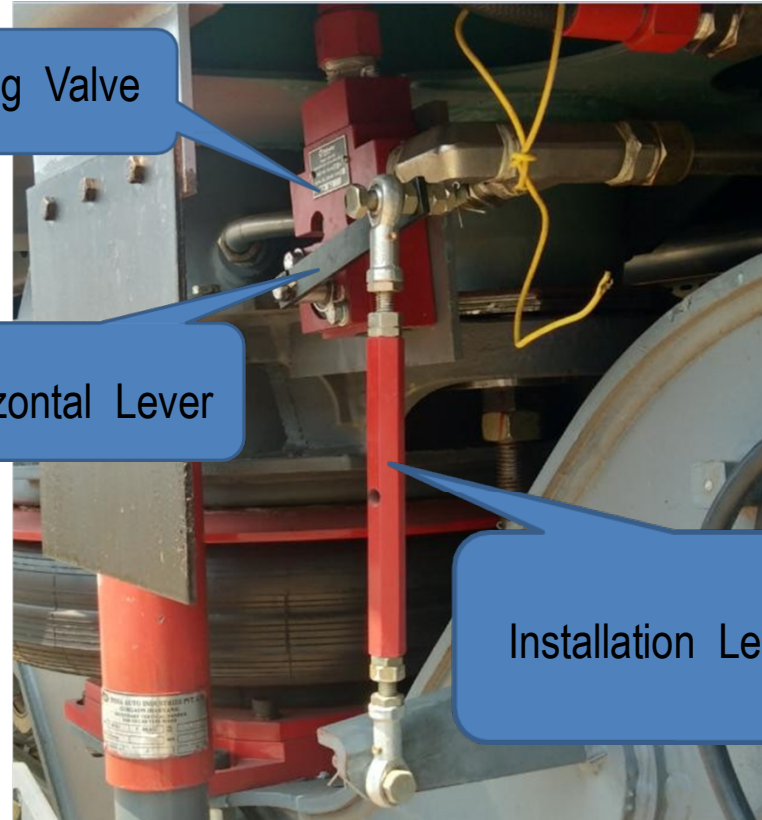
## Failure Due to Installation lever

Leveling valve allows air to or exhausts air from Air bellows to maintain uniform level

Levelling Valve

Horizontal Lever

Installation Lever



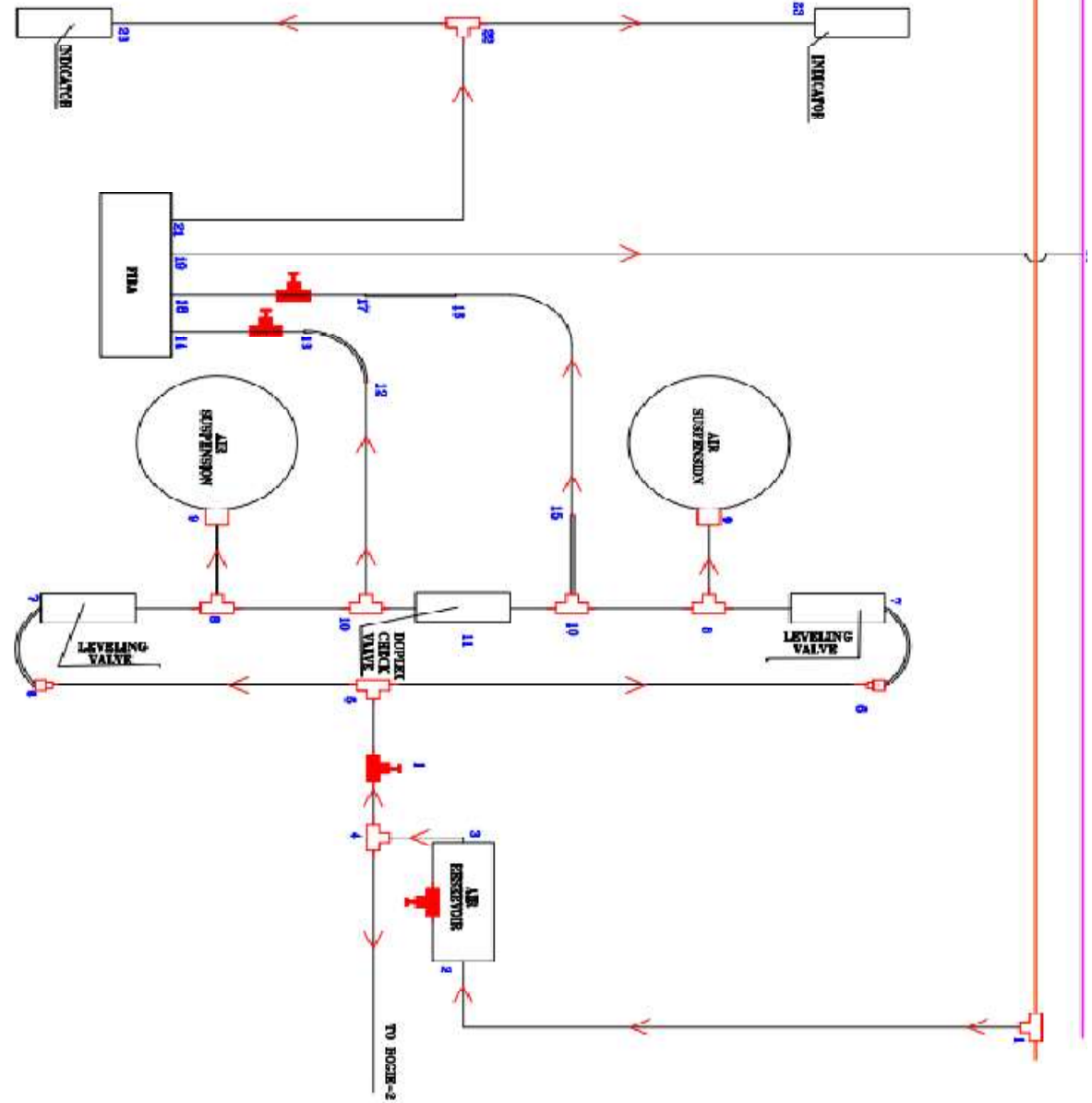
- ❖ If installation lever breaks during venting mode all air exhausts from air spring and in that case FIBA Operates. After operation of FIBA Procedure of resetting to be followed .

# Failure Due to Installation lever

## हवा का रिसाव होने की स्थिति में LHB COACHES को ATTEND करने का तरीका

1. यदि TEE सं 1 से लेवेलिंग वाल्व तक जाने वाली रबर होज पाइप के एडाप्टर सं 6 के बीच किसी प्रकार का हवा का रिसाव है तो इस रिसाव को किसी भी प्रकार से बंद करें एवं FIBA को BYE PASS कर यान को 60 KMPH की गति के साथ अन्य आवश्यक सावधानियां बरतते हुए गंतव्य तक जाने दें.
2. यदि यान को कार्यरत अवस्था में पूरी गति से चलाना है तो AIR SPRING तक जाने वाली हवा की आपूर्ति किसी भी सूरत में बंद नहीं की जा सकती है.
3. TEE सं 10 से FIBA तक जाने वाली पाइप लाइन को TEE पर एक 22 MM x 1.5 MM पिच वाली DUMMY CAP से बंद किया जा सकता है. TEE सं 10 के बाद यदि कोई हवा का रिसाव है तो FIBA को BYE-PASS करना होगा.
4. 6 से 7, 10 से 15, 12 से 13 एवं 16 से 17 स्थानों को जोड़ने वाली सभी रबर होज पाइप एक ही प्रकार की हैं. किसी प्रकार के हवा के रिसाव की स्थिति में इन्हें रास्ते में आवश्यकतानुसार बदला जा सकता है (SKETCH -K -.1054, MATL. SPEC. - RDSO/STR C-K 401).
5. जब TEE सं 10 से आरम्भ किसी पाइप लाइन को दम्मी किया जाएगा तो FIBA पैनेल को संकेत नहीं मिलेगा . अतः पूरे FIBA को ही उचित पद्धति से BYEPASS कर दिया जाय.
6. यह रेखा चित्र लाइन कर्मचारियों के मार्गदर्शन हेतु ड्राइंग सं LW 36189 एवं LW 3624: का संयुक्त चित्र है.

Feed Pipe



## REFERENCE VIDEO

- <https://www.youtube.com/watch?v=U6yU3dRFQK4&t=890s>