

**TIGHT-LOCK AAR TYPE “H”
TYPE CENTER BUFFER
COUPLER FOR COACHING
STOCK**



INTRODUCTION

□ HIGH TENSILE AAR TYPE 'H' TIGHT LOCK CENTRE BUFFER COUPLER (CBC) FOR PASSENGER COACHES OF INDIAN RAILWAYS ARE ACCORDING TO REQUIREMENTS OF IR SPECIFICATION C-K009 Rev-01.

□ TECHNICAL SPECIFICATION ISSUED BY CARRIAGE DIRECTORATE " RESEARCH DESIGN AND STANDARDS ORGANISATION (RDSO) " AT LUCKNOW.

SALIENT FEATURES OF CBC COACHES

1. LOCATED AT THE CENTRE OF THE HEAD STOCK.
2. COUPLER IS DESIGNED TO TAKE BOTH DRAFT AND BUFFING FORCES.
3. ANTI-CLIMBING FEATURE TO AVOID CLIMBING OF COACHES OVER THE OTHER COACHES AT THE TIME OF ACCIDENTS.
4. COUPLER CAPACITY IS ABOUT 200 T WHERE AS THE CONVENTIONAL SCREW COUPLER IS OF 75T. NUMBER OF COACHES CAN BE INCREASED.

5.REQUIRES LESS MAINTENANCE,LESS CARE AND ARE EASY
IN OPERATION AND HANDLING (AS PER THE DESIGN).

6.IN BASIC DESIGN SIDE BUFFERS ARE ELIMINATED (BUT DUE
TO HEAVY END THROW,IN ONE RAKE ON TN Exp.,2622/2621 IS
FITTED WITH SOFT SIDE BUFFERS ON TRAIL PURPOSE) .

7.COUPLING IS AUTOMATIC AND UNCOUPLING CAN BE DONE
MANUALY WITHOUT ENTERING IN BETWEEN THE COACHES.

8.CBC COACHES ARE PAINTED WITH YELLOW STRIPES AT BOTH
ENDS OF THE SIDE WALLS TO DISTINGUISH BETWEEN
NON- CBC AND CBC COACHES.

9.TOTAL WEIGHT OF COUPLER HEAD AND DRAFT GEAR IS
ABOUT 490 kg.

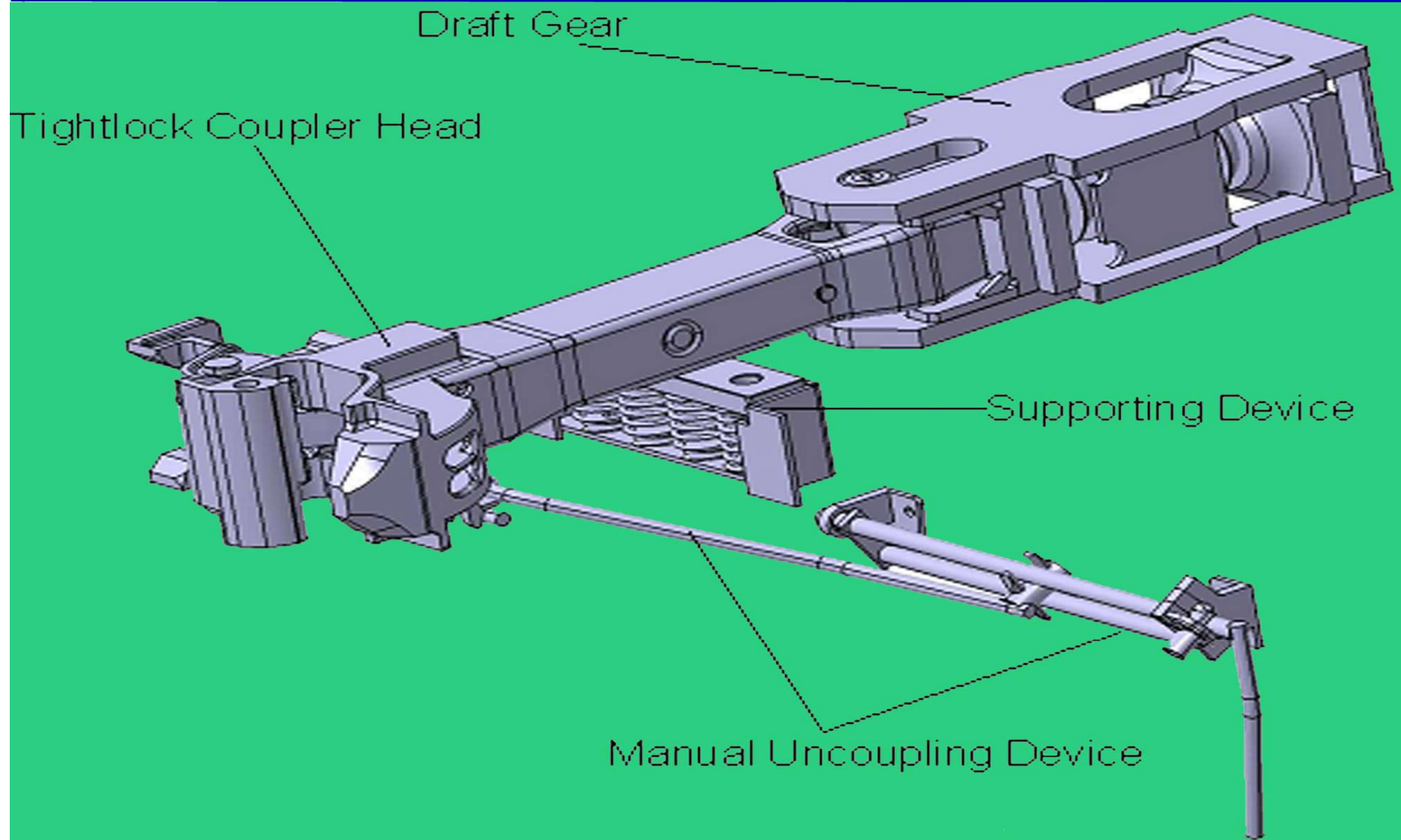
PROBLEMS ON CBC FITTED COACHES

- ❖ HEAVY JERKS WHILE BRAKING AND ACCELERATING.
- ❖ SHUNTING PROBLEMS ON CURVED LINES.
- ❖ FALLING OF PASSANGERS IN TOILETS DUE TO END THROW.
- ❖ GRAZING OF OUTER WHEELS WITH HEAD STOCK CROSS MEMBERS IN SLR'S & GS COACHES.

MAIN COPONENTS OF CBC

- TIGHT LOCK COUPLER HEAD “H” TYPE.
- MANUAL UNCOUPLING DEVICE .
- SUPPORTING DEVICE.
- DRAFT GEAR.

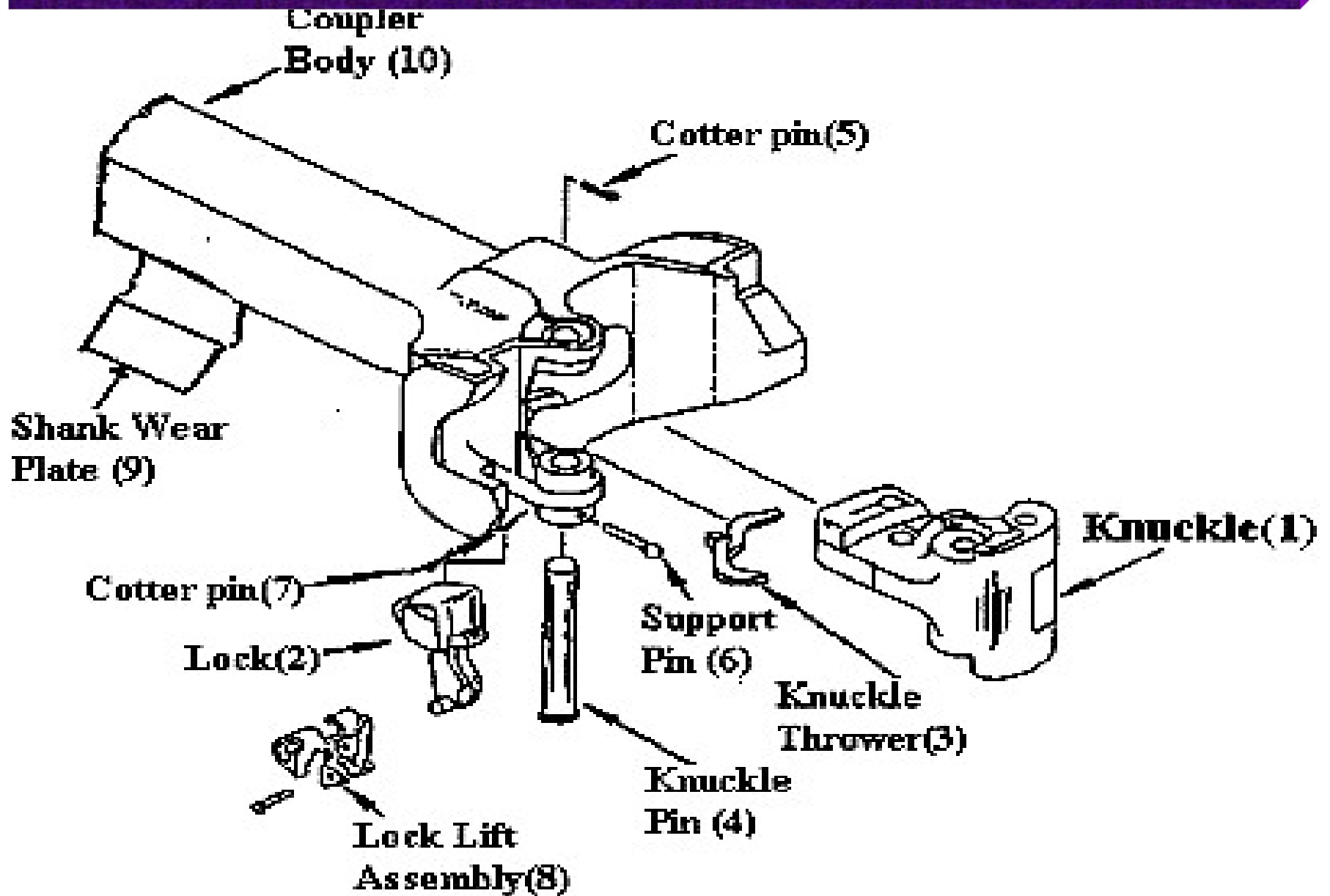
MAIN COMPONENTS OF CBC



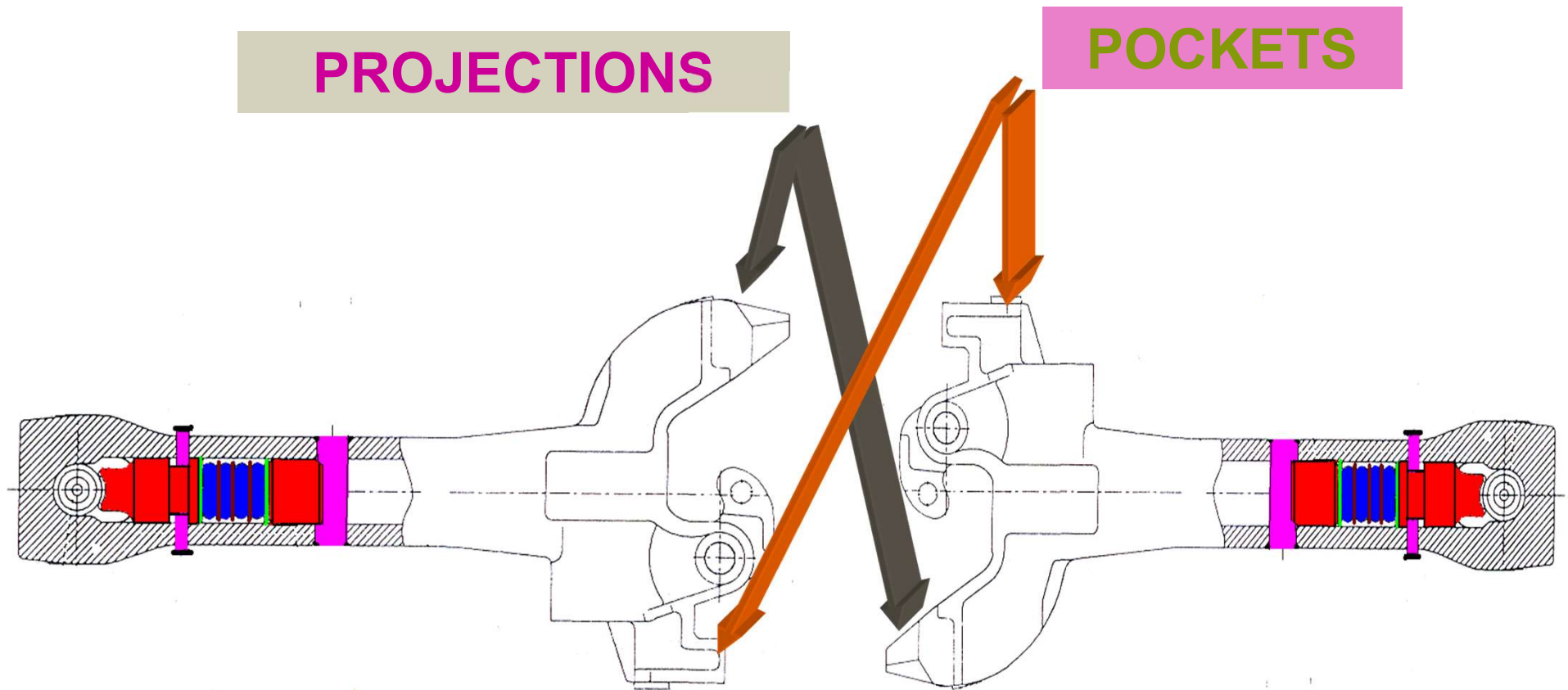
COUPLER HEAD COMPONENTS

- + TIGHT LOCK COUPLER HEAD TYPE “H”
- + COUPLER SHANK
- + STABILIZING SPRING ELEMENT
- + UIC STABILIZING LINKAGE
- + WEAR PLATE (5mm)

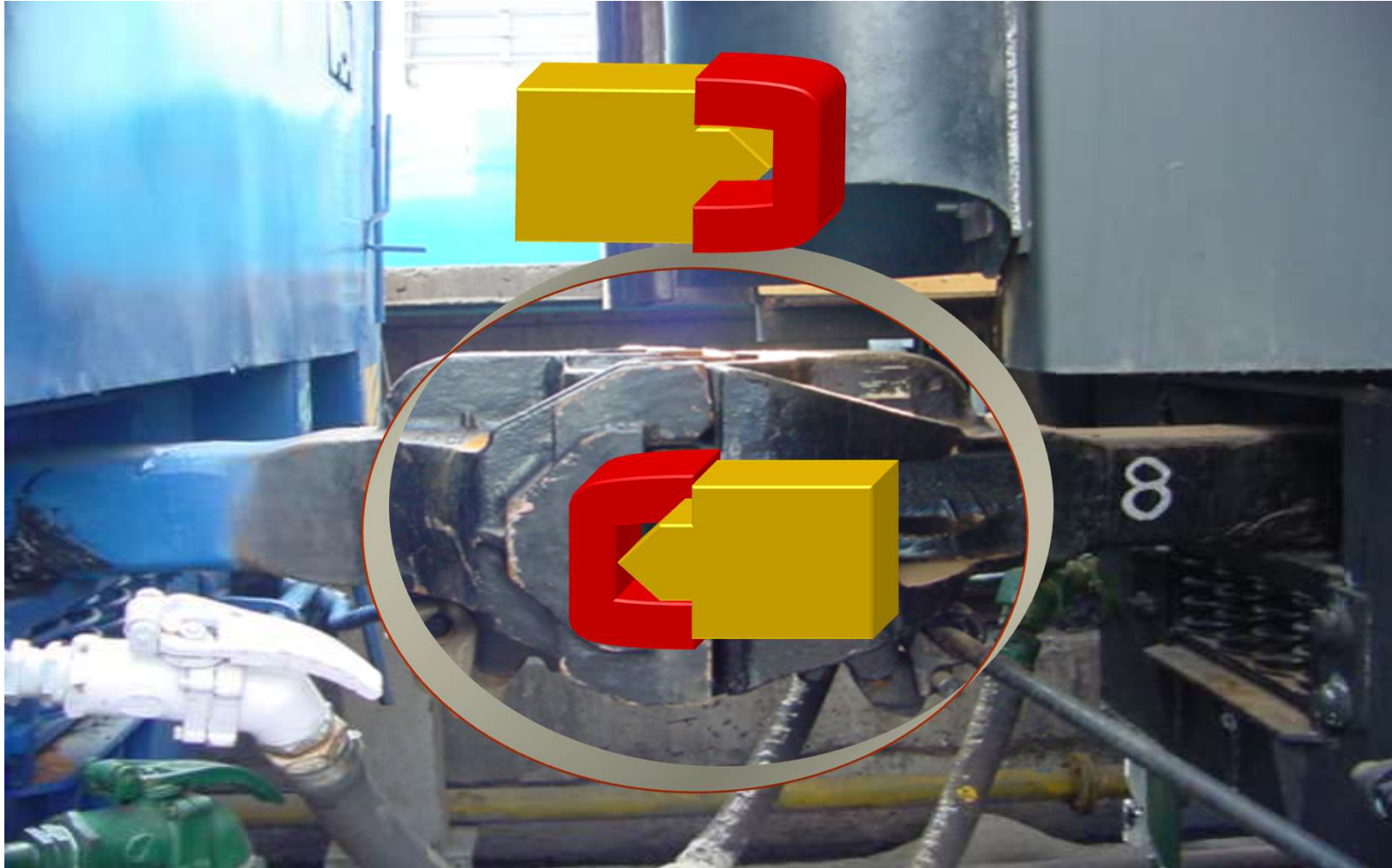
SPARE PARTS FOR THE CBC



ANTI CLIMBING FEATURE (TIGHT LOCK COUPLING)



ANTI CLIMBING FEATURE



TOP VIEW OF CBC'S IN COUPLED CONDITION



COMPONENTS OF DRAFT GEAR



DRAFT GEAR HOUSING



BUFF PLATE



SPRING COLUMN

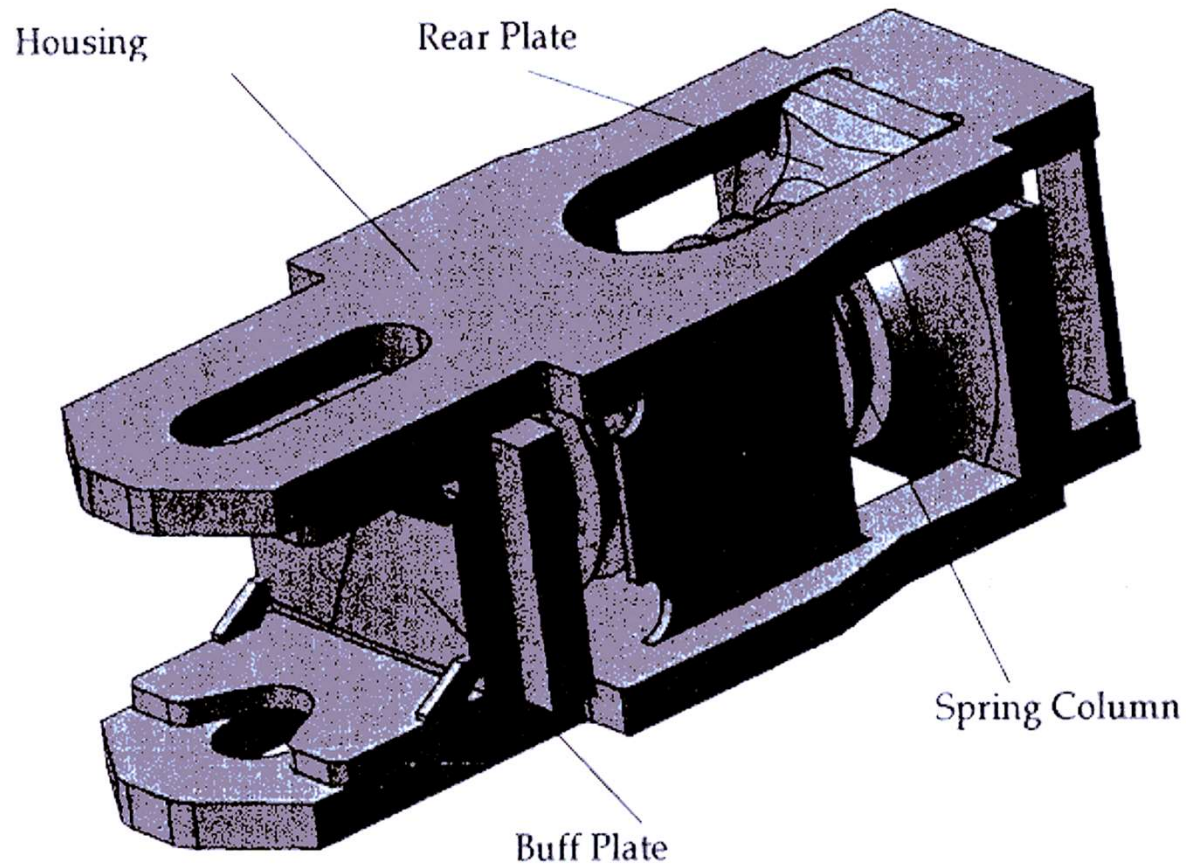


REAR (END) PLATE



GLIDING PIN

DRAFT GEAR



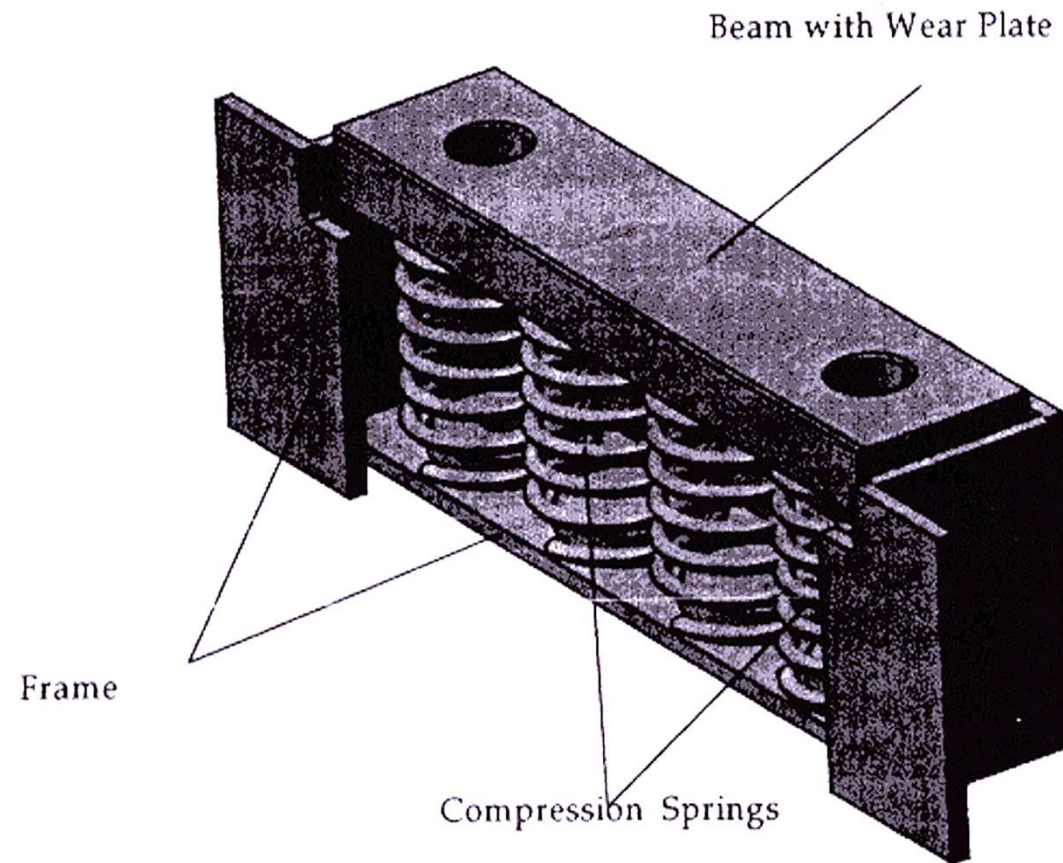
SPECIALTY OF BALANCE DRAFT GEAR

- Energy absorption 45 KJ in dynamic testing as per RDSO specification CK009(Rev.02) same as conventional draft gear.
- Draft gear size (length 510^{+0}_{-5} * width 345* height 275mm) is suitable fit in coach under frame pocket same as conventional draft gear.
- Two separate packs of elastomeric pad(4pads in buff & 3pads in tension) have been used instead of 10 pad together for buff & tensile.
- Enhanced fatigue life due to separate packs used for buff & tensile loading.
- Jerks minimized in longitudinal train dynamics by enhancing design.

COMPONENTS OF SUPPORTING DEVICE FAIVELEY

-  **BEAM WITH WEAR PLATE**
-  **FRAME**
-  **PRE-LOADED COMPRESSION SPRINGS 4 Nos.**
-  **HEXAGONAL SOCKET HEAD CAP SCREW
M16x100 mm (2 Nos).**
-  **FASTENING BOLTS M20x50mm (4Nos).**
-  **CASTLE NUT M16 (2Nos).**
-  **SPRING DOWEL SLEEVE (HEAVY) 4x30.**
-  **SPERICAL DISC 4Nos.**

SUPPORTING DEVICE FAIVELEY



SUPPORT DEVICE ASSEMBLY (FAIVELEY)

HEXAGONAL SOCKET
HEAD CAP SCREW
M16x100 mm (2 Nos)

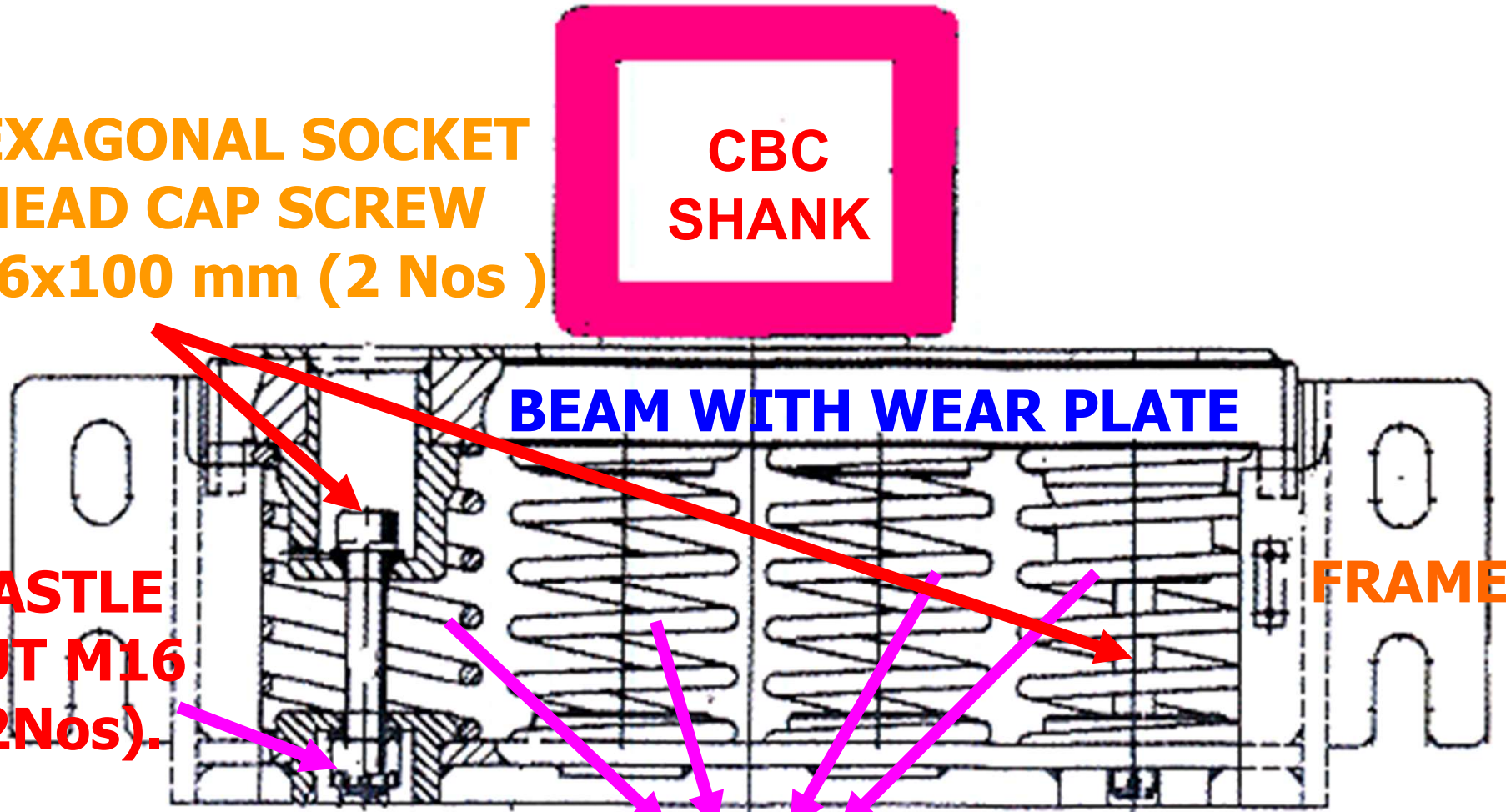
CBC
SHANK

BEAM WITH WEAR PLATE

CASTLE
NUT M16
(2Nos).

FRAME

PRE-LOADED COMPRESSION SPRINGS 4 Nos



HEXAGONAL SOCKET HEAD CAP SCREW M16x100 mm

SPERICAL DISC 4Nos



SALIENT FEATURES OF SUPPORTIG DEVICE

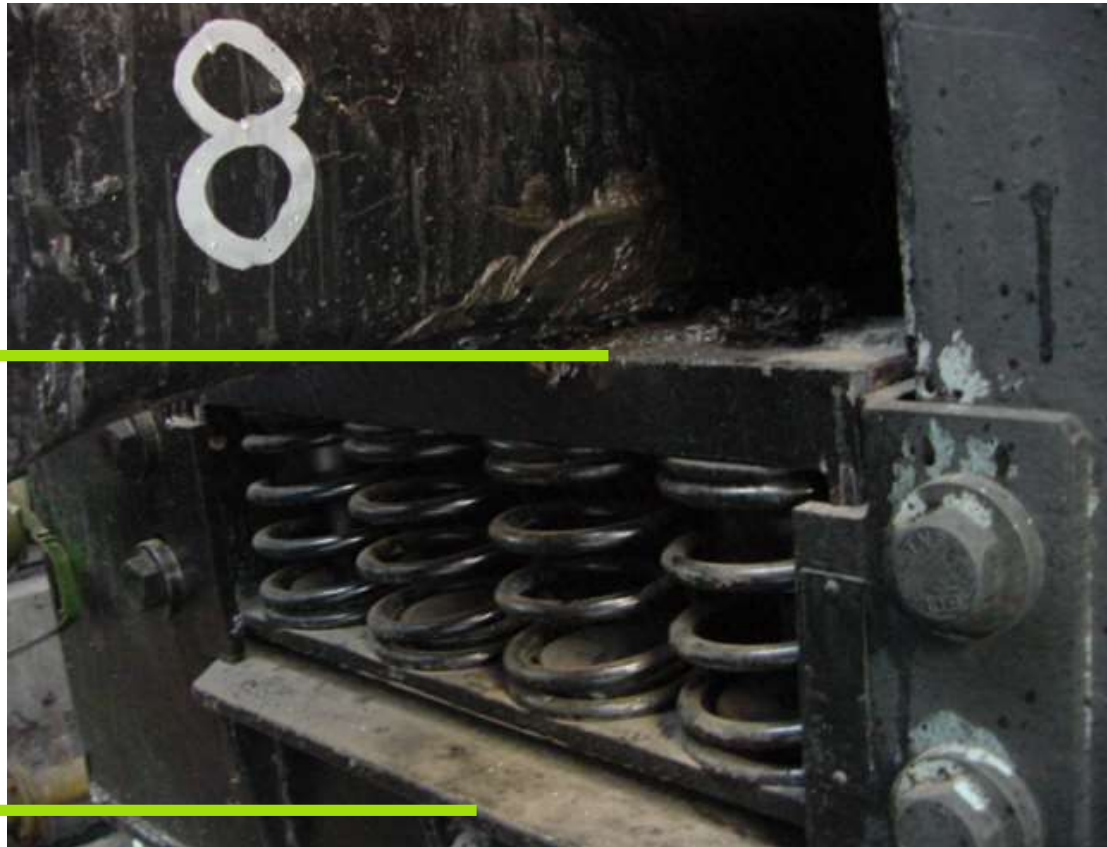
- WEAR PLATE THICKNESS MAX.5MM&
MIN.2.5MM.**
- WEAR PLATE MADE OF MANGANESE
STEEL.**
- SUPPORT DEVICE HEIGHT**

FAIVELEY	187.5 mm
AIKON	170.5 mm

Supporting device

FAIVELEY

187.5 mm



COMPONENTS OF MANUAL UN-COUPLING DEVICE



FAIVELEY

SLIDING ROD TYPE

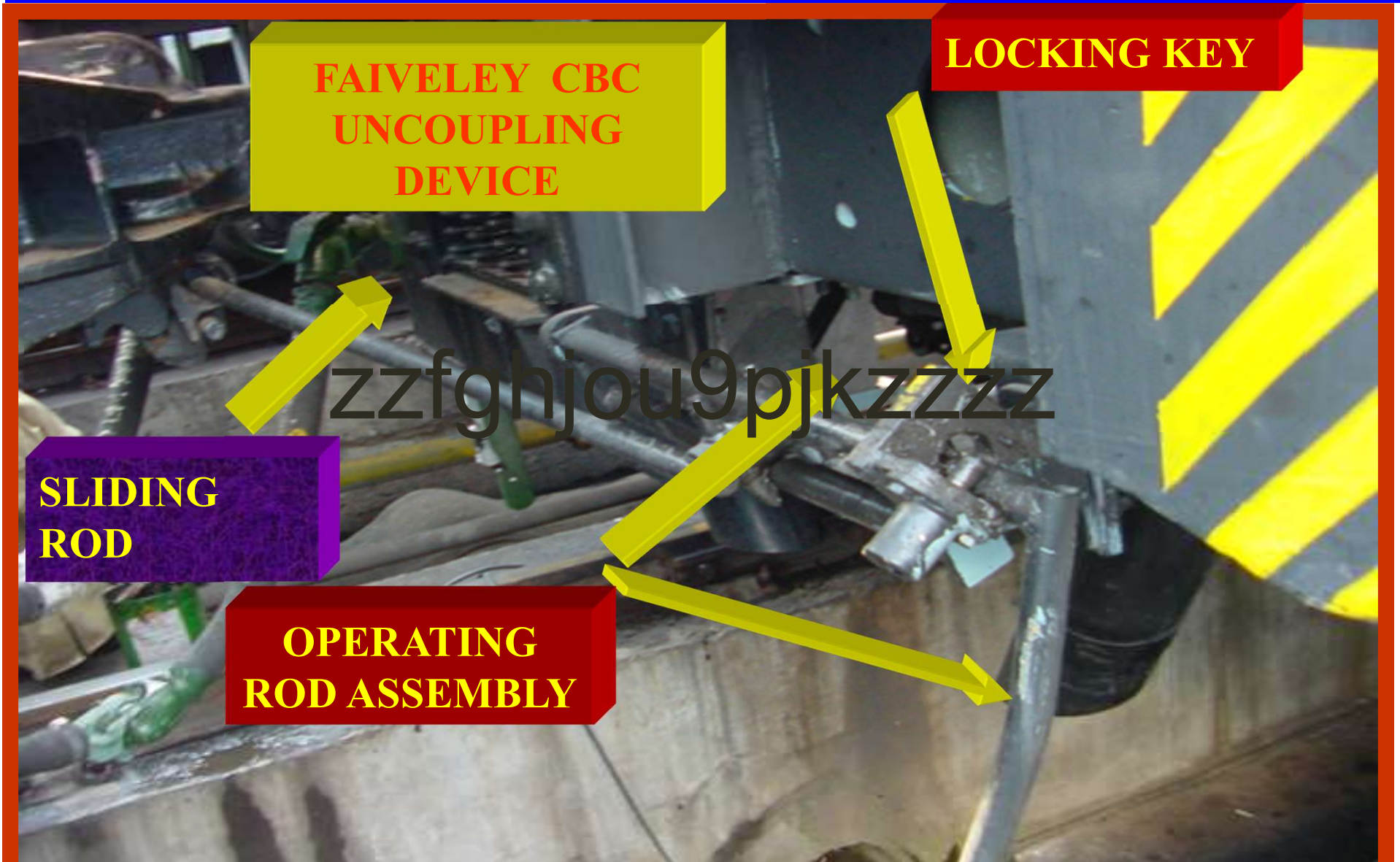
SLIDING ROD

OPERATING ROD

MOUNTING BRACKETS

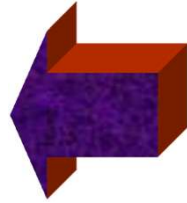
**OPERATING ROD LOCKING
ARRANGEMENT**

CBC OPERATING MECHANISM



FAIVELEY CBC OPERATING ROD LOCKING ARRANGEMENT





**SOCKET TYPE UNLOCKING KEY
FOR FAIVELEY TYPE & MODIFIED
AIKON TYPE OPERATING LEVER**

LUBRICATION. ? ?

DO NOT LUBRICATE :

KNUCKLE, LOCK, TOGGLE, ROTARY LEVER

LUBRICATE :

SUPPORTING DEVICE, MANUAL

UNCOUPLING SLIDING AREAS

APPLY KEROSENE ON OPERATING

LEVER LOCKING SCREW/ROD & UN-

SCREW AND SCREW AGAIN.



COUPLING

PROCEDURE

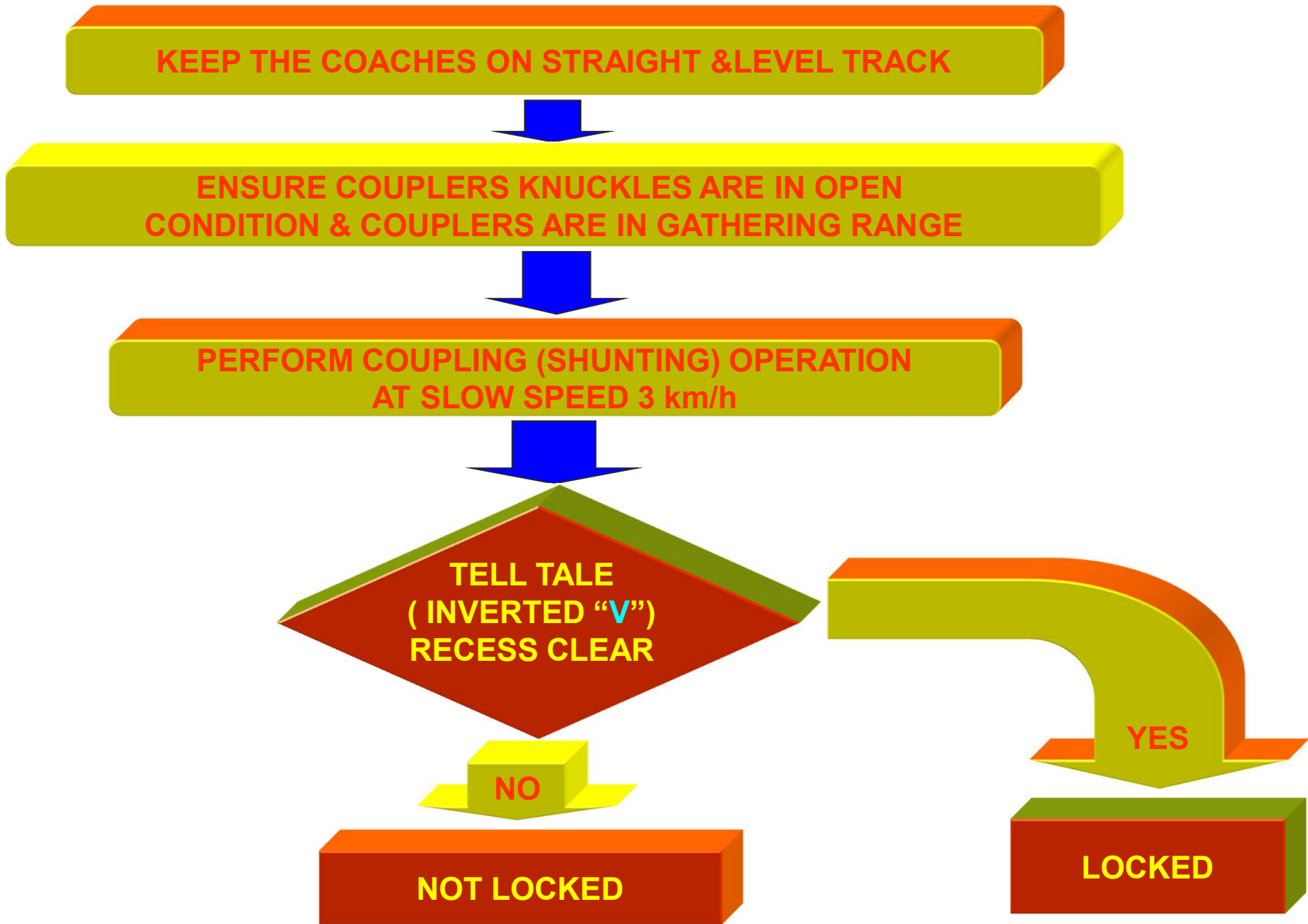
GENERAL INFORMATION

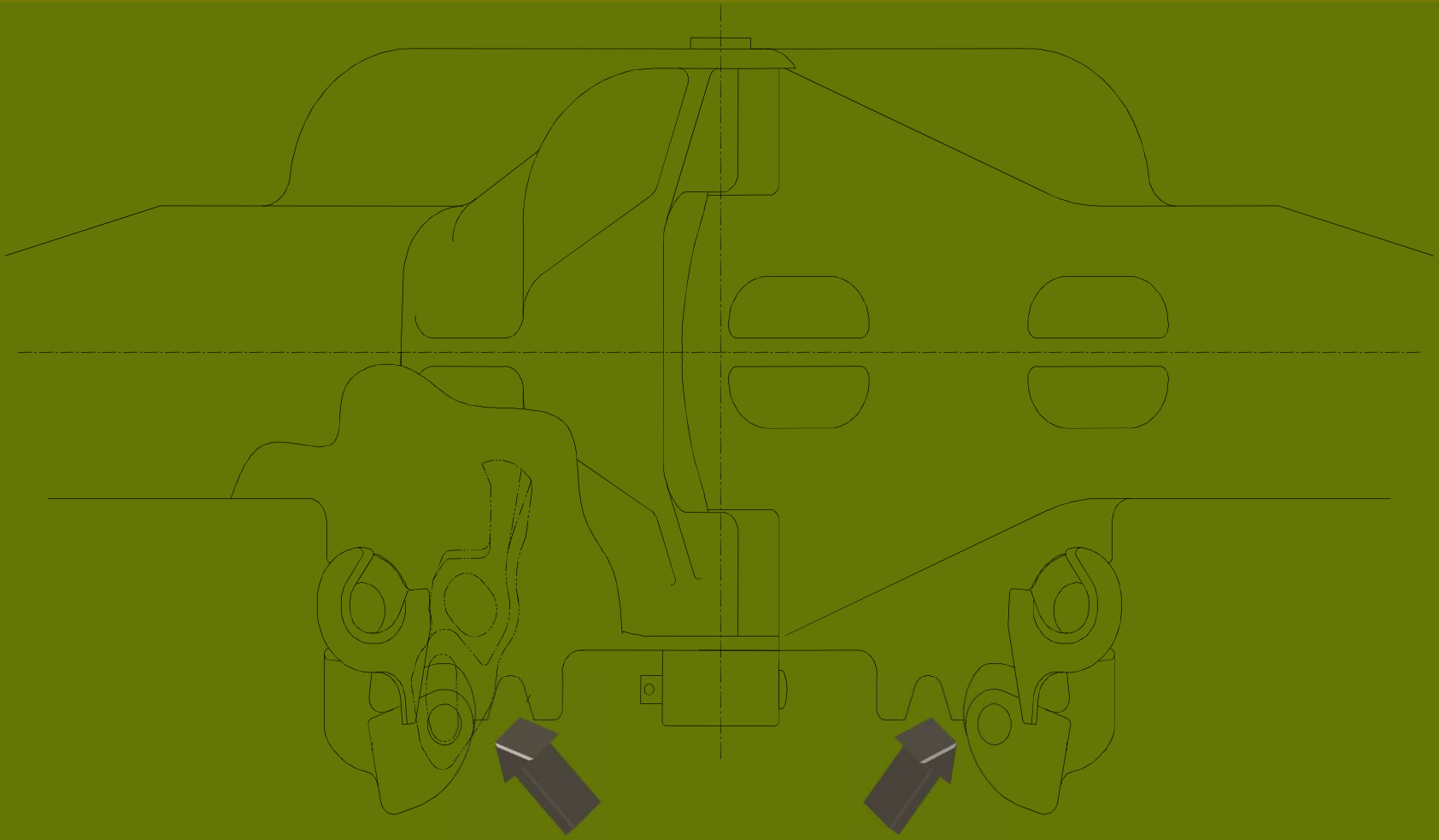
GATHERING RANGE:

- . **HORIZONTAL :+/-110mm**
- . **VERTICAL :+/-90mm**

**DURING COUPLING & UNCOUPLING
SHOULD NOT STAND BETWEEN THE
VEHICLES.**

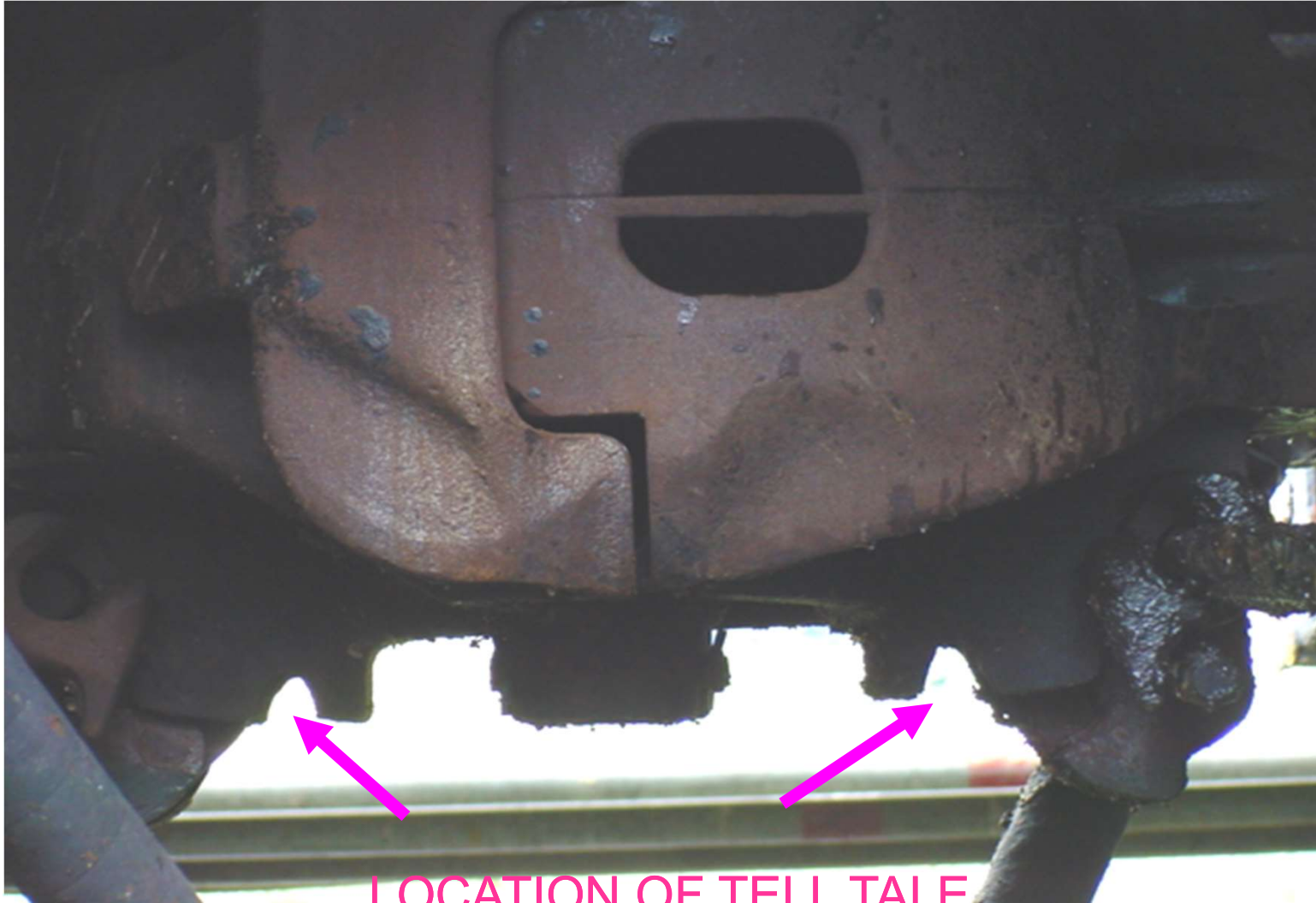
**COUPLING IS AUTOMATIC, FOR
UNCOUPLING – UNLOCK , LIFT &
ROTATE MANUALLY THE HANDLE OF
MANUAL UNCOUPLING DEVICE IN A
CLOCKWISE DIRECTION**



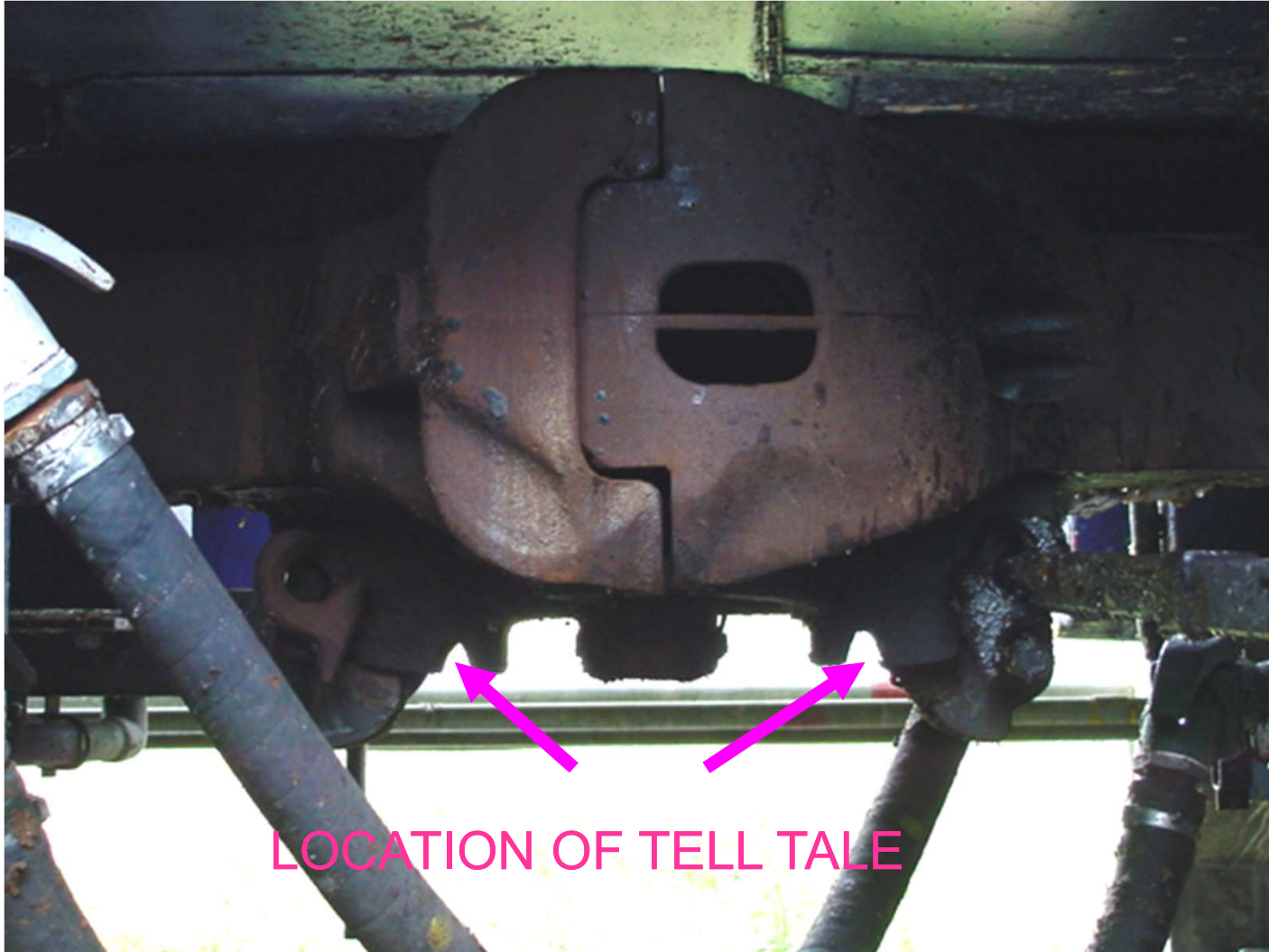


TELL TALE RECESS

LOCATION OF TELL TALE

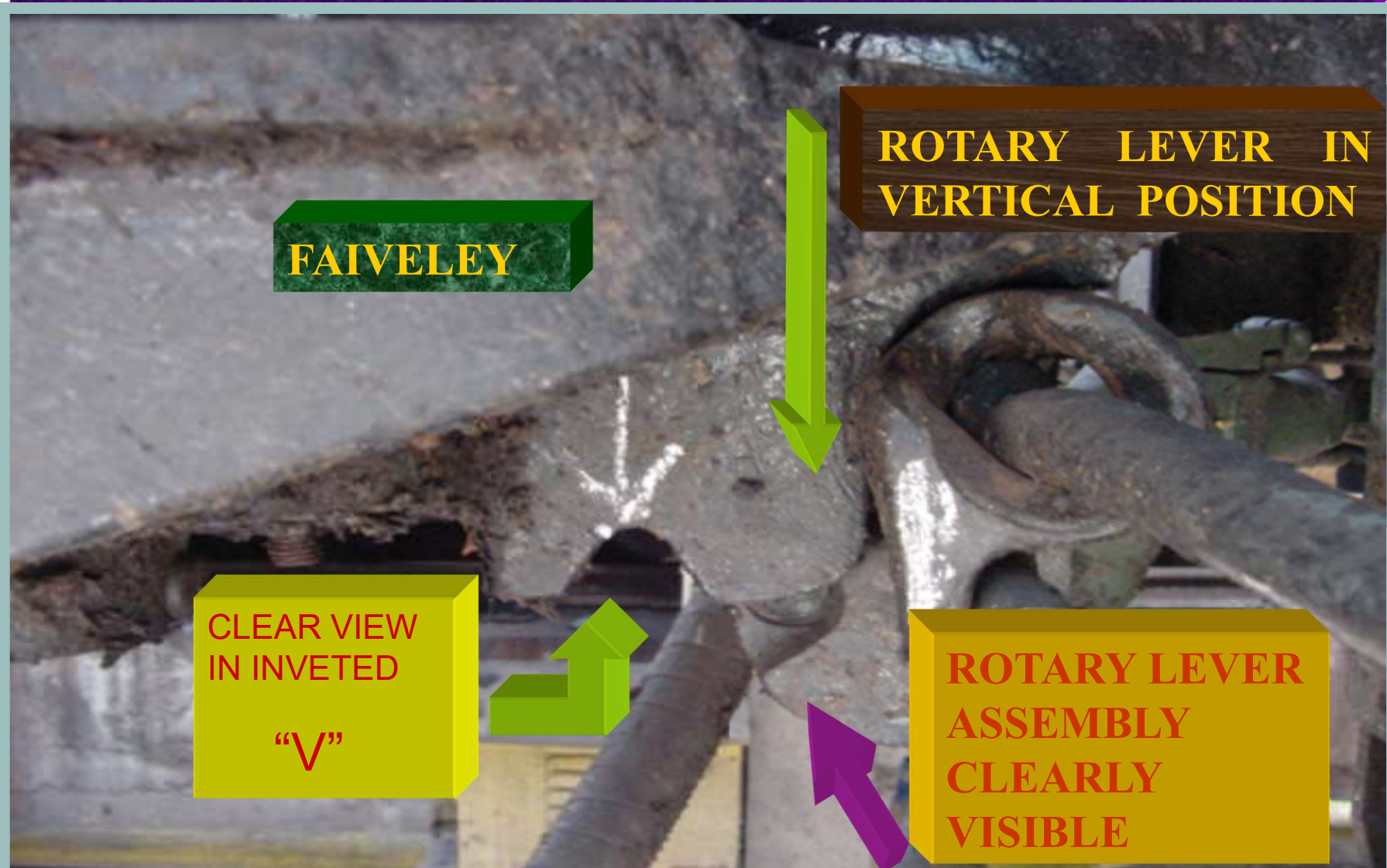


LOCATION OF TELL TALE



LOCATION OF TELL TALE

CLEAR VIEW OF TELL TALE



LOCATION OF TELL TALE



LOCATION OF TELL TALE



LOCATION OF TELL TALE





UNCOUPLING PROCEDURE

UNLOCK THE OPERATING LEVER



**PUSH THE VEHICLES TOGETHER SLIGHTLY TO
RELIEVE FROM (TENSILE LOAD) EXCESSIVE
BINDING**



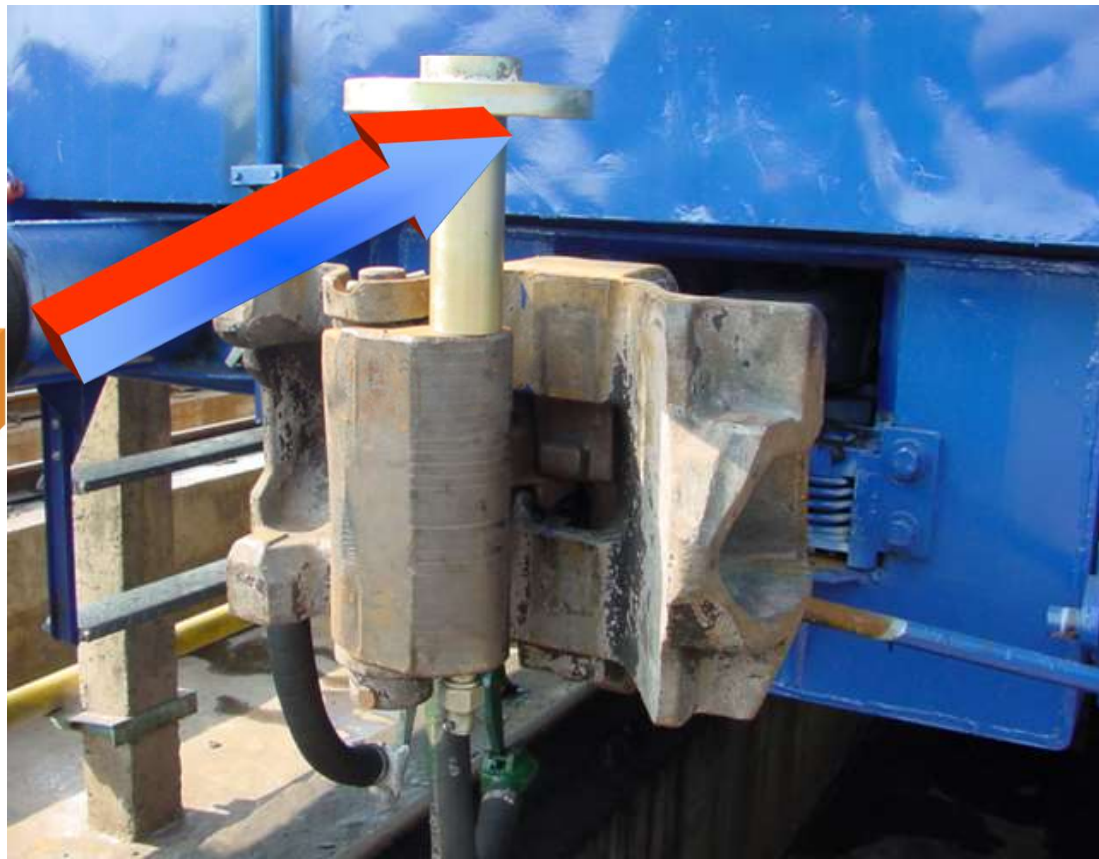
**LIFT & TURN OPERATING LEVER IN CLOCK WISE
DIRECTION Min. OF 90°**

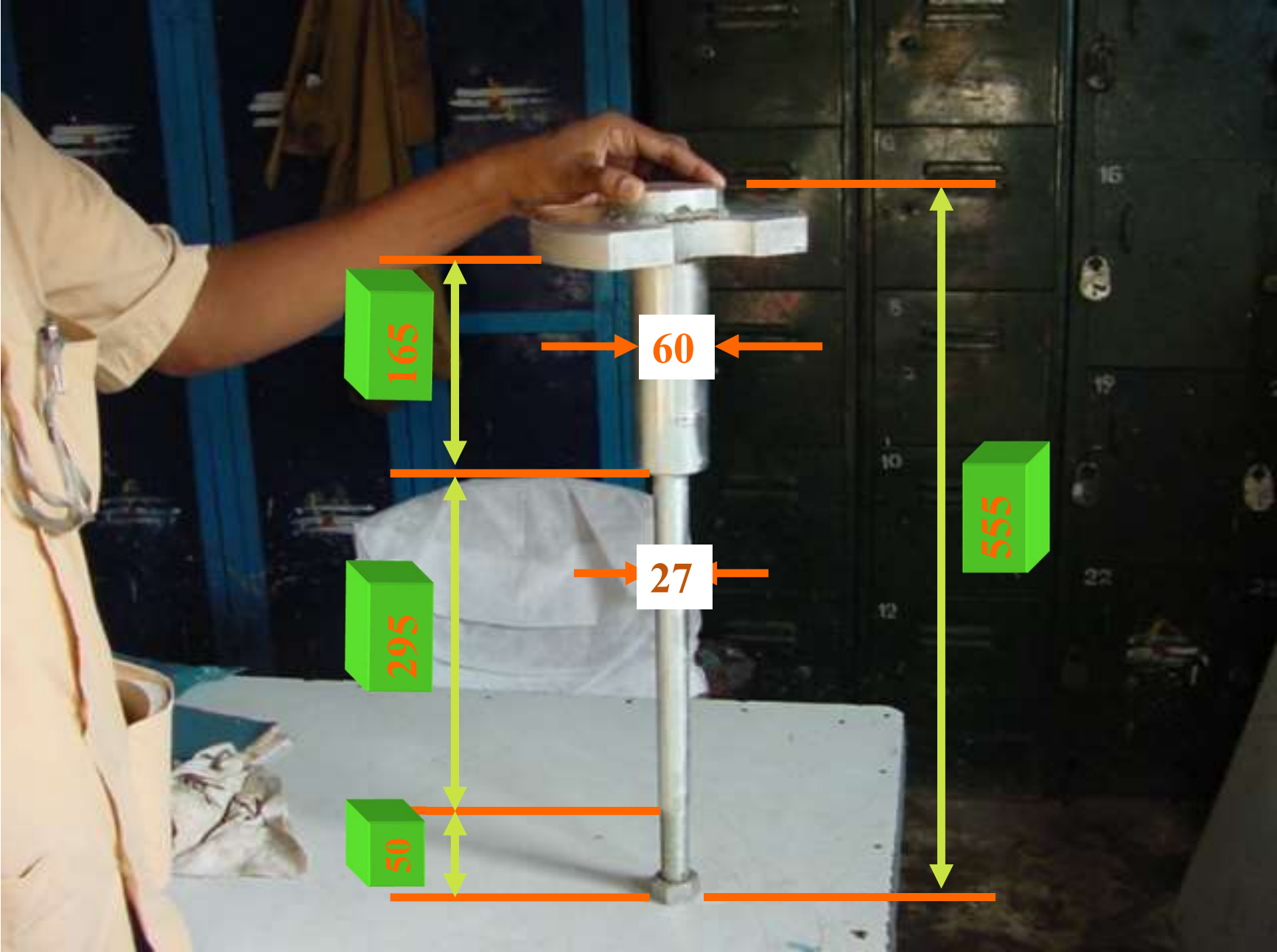


PULL THE COACHES APART

RESTRICTOR ON CBC'S NEXT TO ENGINE (SLR & VPH)

RESTICTOR





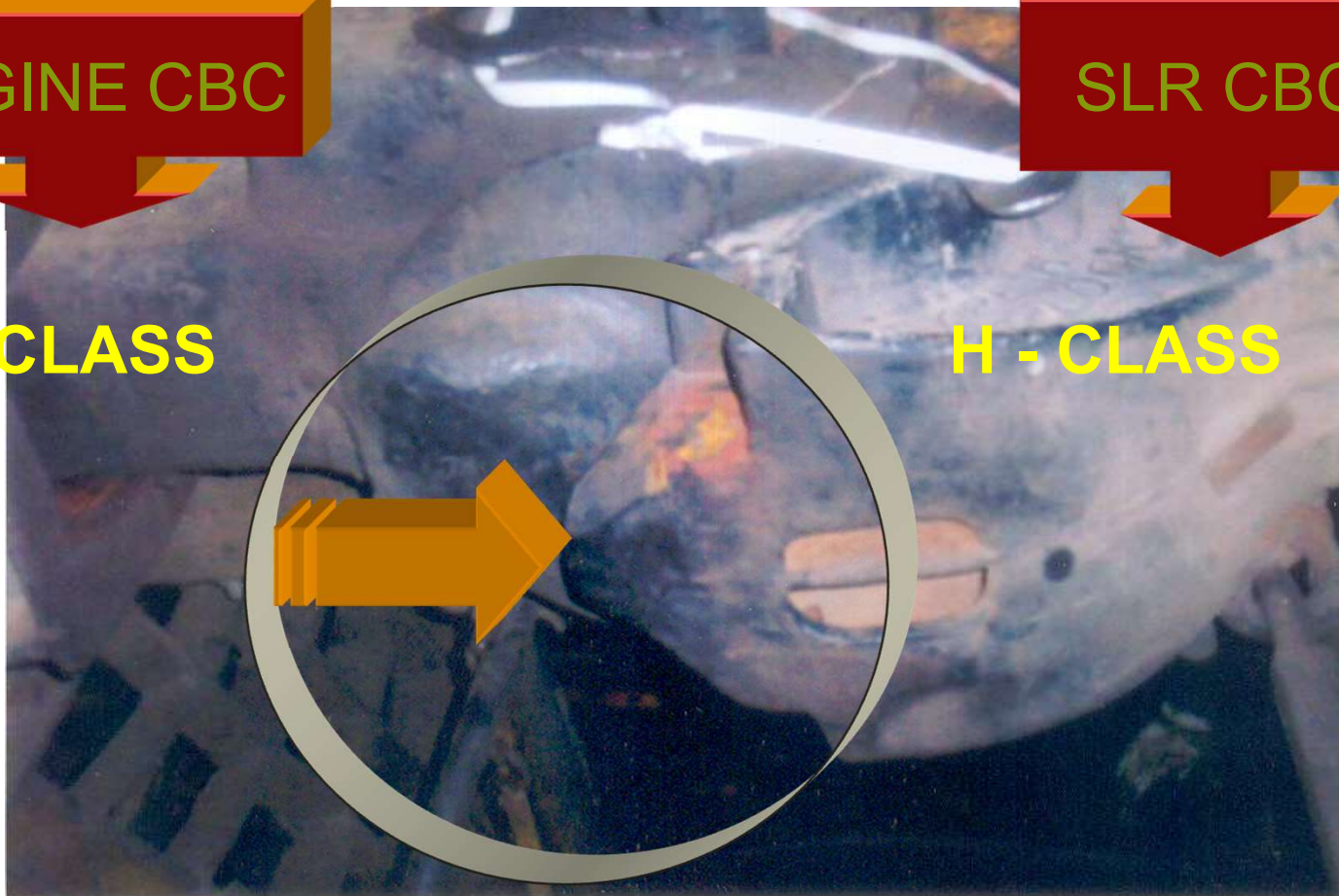
PURPOSE OF RESTRICTOR ON SLR CBC ON ENGINE SIDE

ENGINE CBC

SLR CBC

E - CLASS

H - CLASS



PROVISION OF SHIMS IN BETWEEN SLR'S CBC&ENGINE CBC



PROVISION OF SHIMS IN BETWEEN SLR'S CBC&ENGINE CBC



FAIVELEY SUPPORT DEVICE BOLTS WORKED OUT



DEFECTIVE SUPPORTING DEVICE AIKON (ASF - KEY STONE)



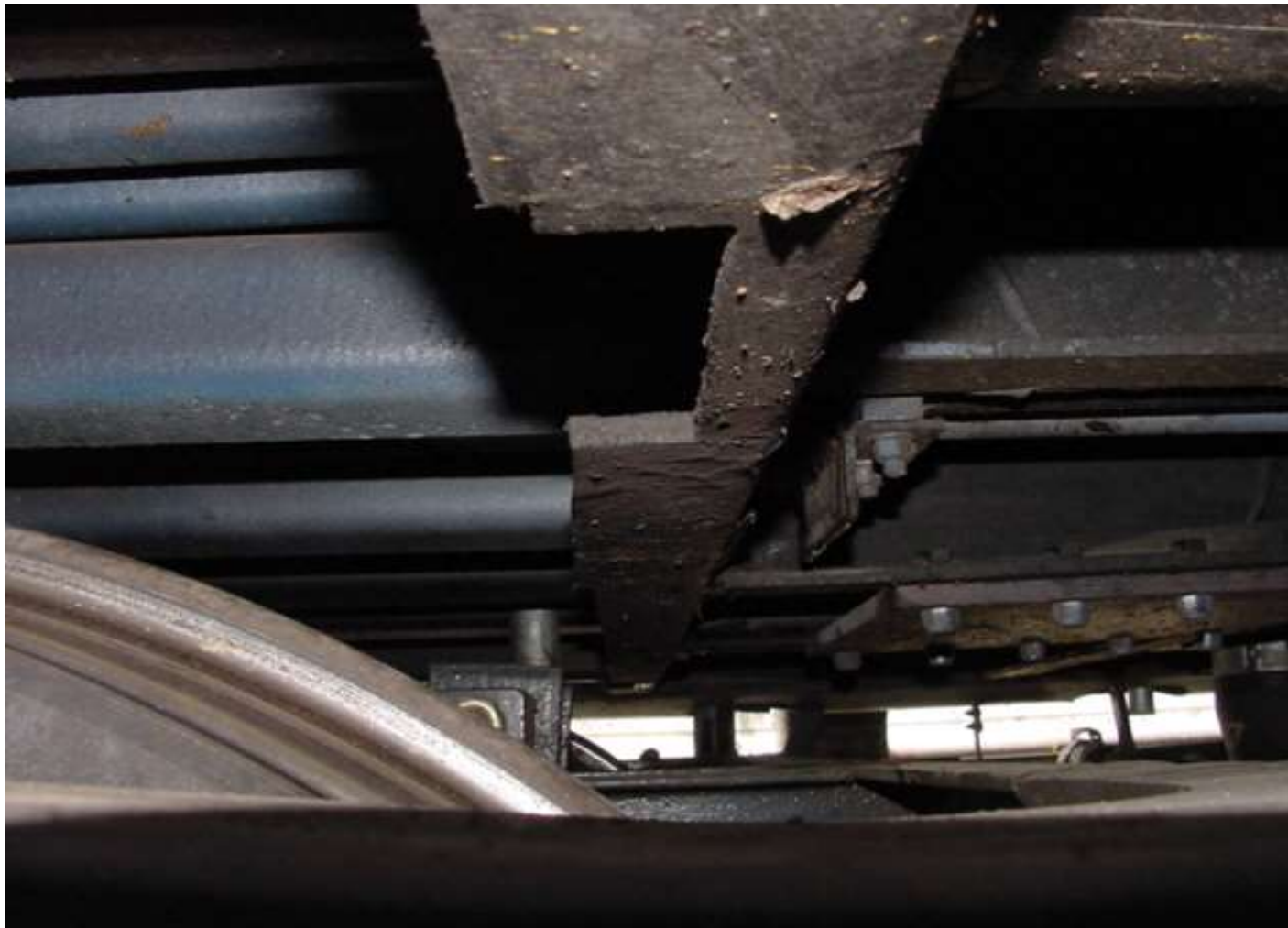
**BROKEN M22 BOLTS OF AIKON
SUPPORTING DEVISE**



**WHEEL GRAZING WITH HEAD STOCK CROSS
MEMBERS ON SLR ,GS & VPH COACHES**



**INCREASED HEAD STOCK LENGTH INFRINGING WITH
WHEEL FLANGE ON GS,SLR & VPH**



POSITION LOCK IN LOCKED CONDITION



PAY ATTENTION DURING RAKE EXAMINATION

- ENSURE TELL-TALE IN ALL COACHES.
- ENSURE THE LOCKING ARRANGEMENT FOR MANUAL UN-COUPLING DEVICE OPERATING ROD IN ALL COACHES.
- ENSURE THE CONDITION OF SUPPORTING DEVICE & AND ITS COMPONENTS IN ALL COACHES.
- ENSURE THE CONDITION OF KNUCKLE PIN BOTTEM STOPPER & ITS SPLIT PIN IN ALL COACHES.
- ENSURE THE CBC BODY FOR ANY CRACKS IN ALL COACHES.
- ENSURE THE CONDITION OF ROTARY LEVER & TOGGLE ASSEMBLY FROM INSIDE IN ALL COACHES.
- ENSURE THE CODITION OF GREASE ON SUPPORTIG DEVICE BEAM & MANUAL UN-COUPLING DEVICE SLIDING AREAS IN ALL COACHES.

EASTERN RAILWAY

Sealdah, Dated 04.04.2017

JOINT PROCEDURE ORDER

FOR ATTACHMENT OF TRAIN ENGINE WITH LHB COACH ('H' TYPE CBC COUPLER) FOR
ORIGINATING TRAIN

1. Loco movement up to load (train) should be piloted by Station staff (Shunt man, Points man or Porter) guided by Shunt Signal / Shunting order. Before attaching the loco shall be stopped at 20 meters from the first coach by showing red signal (SR 5.13.3) and shall move slowly to stop again at not less than 3 meters from the 1st coach of the rake. On getting hand signal from Station staff the LPS shall proceed the loco up to the 3rd notch in succession so that loco can couple with the coach at a speed of 2 to 3 KMPH.

2. The CBCs of loco and coach shall be aligned horizontally so that they are within gathering range and this should be ensured by ALP & C&W staff respectively. Coach CBC knuckle shall be in closed position and ensured by the C&W staff. The Loco CBC knuckle shall be unlocked and in open condition & it should be ensured by Assistant Loco Pilot / Co-driver*. On coupling, full clearance of telltale recess of both couplers shall be ensured by C&W staff.

3. The training of all the loco pilots shall be arranged, course regarding correct procedure of coupling the CBC rakes and how to ensure proper locking. Once all the loco pilots are fully trained in handling CBC coupling, the loco pilot should be made responsible for checking proper locking of CBC of 1st coach with locomotive. Till loco pilots are trained, the work may be assigned to C&W staff escorting the train (WTT'2016, Page No. XIX, Point No.7).

Already 256 nos. of LP & ALPs have been trained in the period from 02.08.16 to 31.08.16. Further booking of LP & ALPs for aforesaid training should be monitored by concerned department.

4. After ensuring that both coupling area are in case, C&W staff shall lock uncoupling rod by putting locking pins in place in both the CBC and the locking pins shall be tied by GI wire.

5. The coupling/uncoupling of engine hose pipes with the Train hose pipe is the duty of ALP, after getting the due clearance from the C&W staff, who couples the engine (WTT 2016 page LIII). In case engine is manned by Shunter / Loco Pilot and no Assistant Loco Pilot is provided, the hose pipe will be coupled/uncoupled by TXR staff when TXR staff is provided (WTT page no. LIV SL No.24).

6. The Loco Pilot and Guard shall ensure that required amount of BP & FP pressures are being build up in loco and SLR respectively and then they conduct continuity test.

7. In SDAH division loco in manned by LPS (Loco Pilot Shunting) for attaching the Loco from Car shed / siding on Pass/mail express trains. All above work of LPS for attaching of Loco with coach shall be done by LP in case Loco comes from other Station and manned by LP & ALP.

*As per ACTM volume-III Para – 30605(6) in case of Rajdhani Express/other superfast Mail/Express trains Loco Pilot is provided instead of ALP. The Co-Pilot will carry out all the duties of ALP.


Sr. DEE/Op/SDAH


Sr. DME/SDAH


DME/D&P/SDAH


Sr. DOM/SDAH

PAWING