INDIAN RAILWAY CONFERENCE ASSOCIATION

NEUTRAL CONTROL ORGANISATION, GOLDEN ROCK WORKSHOP, PONMALAI, TRICHY SOUTHERN RAILWAY

PRESIDENT, IRCA

TECHNICAL PAPPER COMPETITION-2015

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SIDE FRAME PEDESTAL WITH MODIFIED INNER JAW, TO SUIT LOW DIA WHEEL SETS ON NARROW JAW CASNUB BOGIES WITH 37 M.M PACKING

Design alteration suggested on CASNUB, NLB, Bogie to hold the Pedestal Jaw inner and the narrow jaw adopter comfortably with 37 mm packing

In the CASNUB bogies Adaptors and side frame pedestal jaw inner, together plays the important role to control the Lateral and Longitudinal movement of side frame and the adaptor.

The lateral thrust generated due to the sinusoidal movement of the wheel sets transmitted through the roller bearing to the adaptors and the side frame pedestal jaw inner finally. **This lateral thrust over adaptor and pedestal jaws will be normally very high during loaded wagons on run while negotiating the curves. Hence the guide between the Adaptors and side frame jaw inner is more sensitive and vulnerable**.

The pedestal jaw inner lug on the side frame is having some limitation while providing 37 mm packing over the adaptors to maintain the buffer height of the wagon , when wheel diameter reaches less than 930 mm. **The guiding surfaces of pedestal inner jaw and the Adaptor lug is become very less and the possibilities for the adaptor to canted badly and also the wheel sets to thrown out** if any breakage of this guide surface happened combined with the breakage of 37 mm packing top guide rib. The breakage of 37 mm guide plate is already been experienced by the open line depots during the past. The detachment of wagon from the goods often happens due to badly canted adaptors.

The photograph No. 01 shows the side frame assembly with 37 mm packing piece.

The photograph No.02 and No. 03, the **Red arrow mark** clearly shows the assembled position of the side frame jaw inner and the adaptor with 37 mm packing for low dia wheelsets. Where the guiding surface is very less, and the pedestal jaw mostly out from the adaptor.

The photograph No. 04 shows the **Narrow jaw adaptor with curved shoulder** with the shifted 37 mm packing. Here the **arrow** shows clearly there is only a very little guide surface and most of the side frame jaw inner is above the adaptor.

SUGGESTION:

*** HENCE THE SIDE FRAME PEDESTAL JAW INNER HAS TO BE INCREASED AT LEAST BY 40MM TO 75 MM HOLD AND GUIDE THE ADOPTOR COMFORTABLY WHILE WITH 37 MM PACKING.**

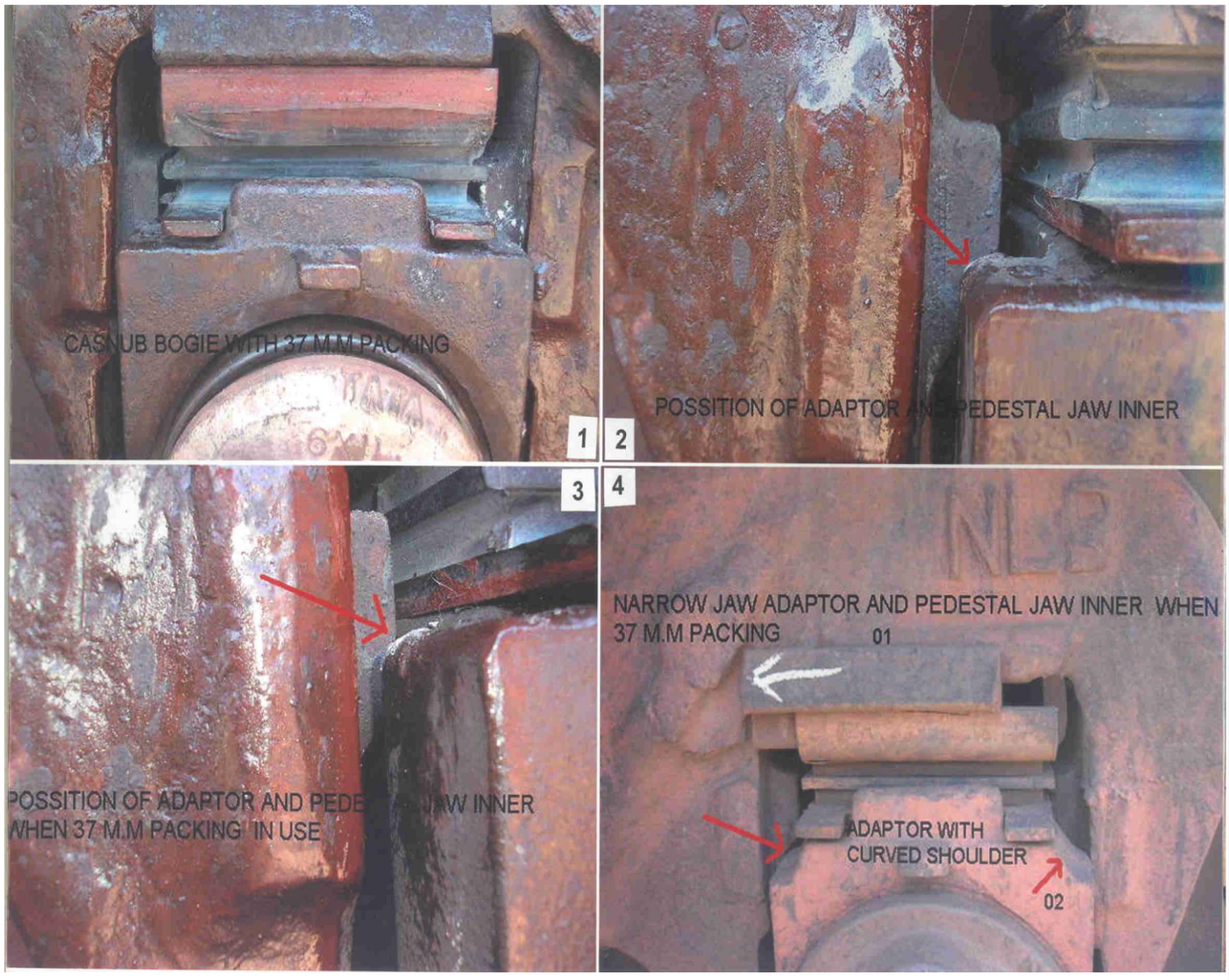
(1) Free hand sketch enclosed page.No.5

(2) Existing bogie with 40 mm ,Recommended bogie with 75 mm width pedestal law

1. CASNUB BOGIE WITH 37MM ADAPTOR

2. PEDESTAL JAW INNER AND ADAPTOR POSSITION

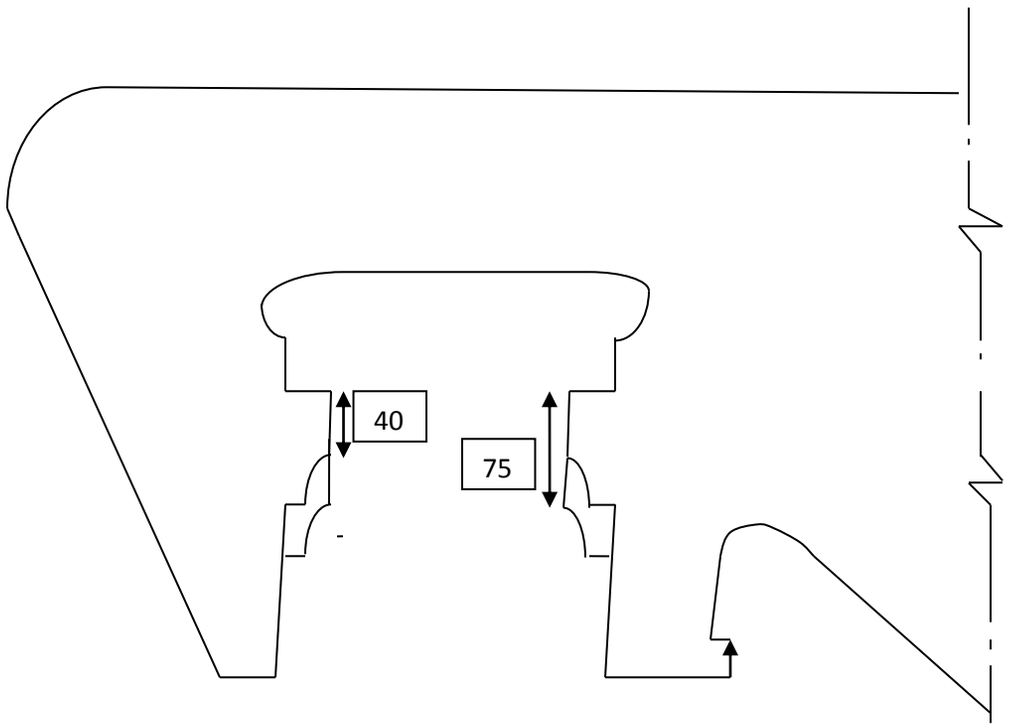
3 , 4. PEDESTAL JAW AND ADAPTOR WITH SHIFTED 37MM PACKING .



RECOMENTED MODIFIED SIDE FRAME WITH 75 mm. HEIGHT PEDESTAL JAW

EXISTING JAW 40 mm.

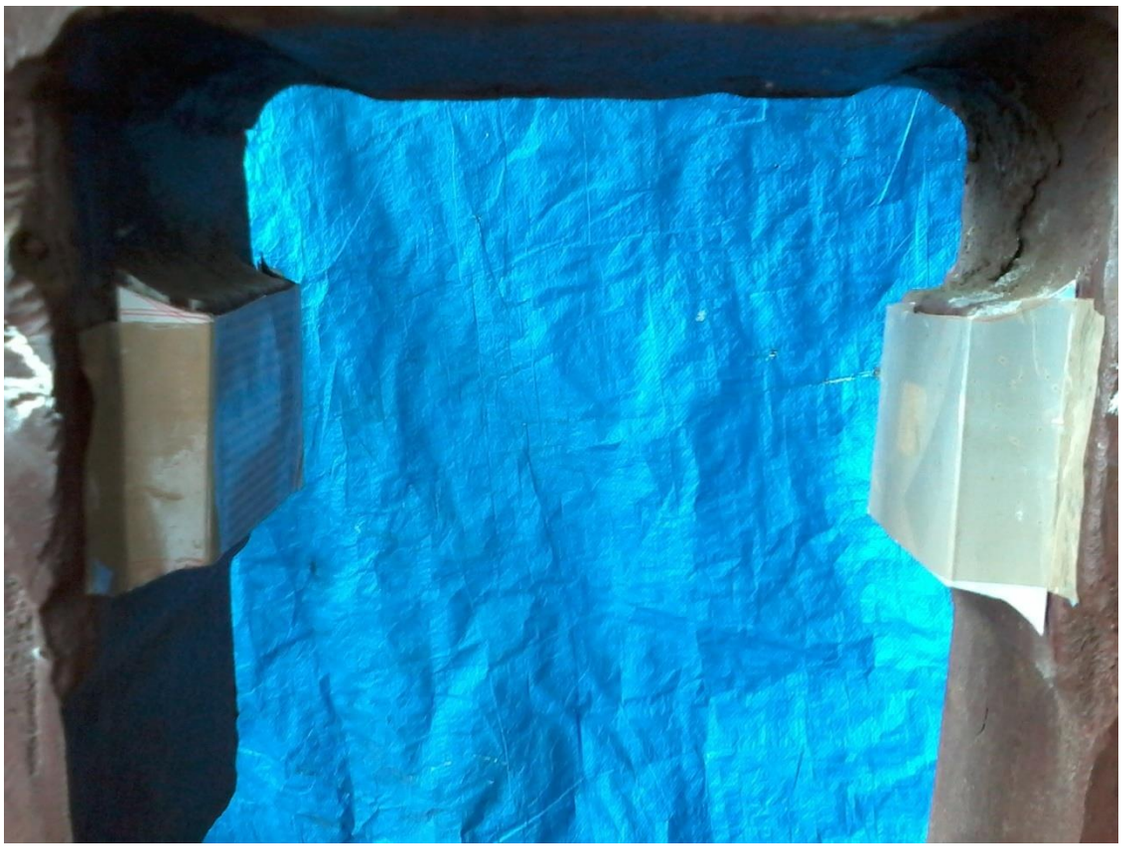
MODIFIED JAW 75 mm.



EXISTING CASNUB NLB BOGIE WITH 40 mm. WIDTH PEDESTAL LAW



RECOMENTED CASNUB NLB BOGIE WITH 75 mm. WIDTH PEDESTAL LAW



ANTI SHIFTING ARRANGEMENT FOR 37MM. PACKING PIECE OF CASNUB NARROW JAW BOGIE

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ANTI SHIFTING ARRANGEMENT ON 37 MM PACKING PIECE

ANTI SHIFTING / SLIPPING ARRANGEMENT WITH 37 MM BUFFER HEIGHT ADJUSTMENT PIECE

CASNUB bogies are having two different types of buffer height adjustment pieces one 12 mm and the other 37 mm.

Whenever the wheel diameter falls between 954 to 930 the required packing is 12 mm and below 930, 37 mm packing will come in force.

The 12 mm packing is provide between the adaptor crown and the Elastomeric pad and well placed between adaptor crown lugs and the possibilities of shifting of the same is imminent. But in the case of 37 mm packing, that is provided between side frame crown roof and top of Elastomeric pads. There is no provision given to arrest the longitudinal movement of the packing piece. We are experiencing most of the 37 mm packing pieces are **shifted badly** from the either sides of the Elastomeric pads. That results dislocation of adaptors, canting of the same etc.

The Photograph No. 01 shows the Adaptor with shifted / slipped 37 mm packing piece.

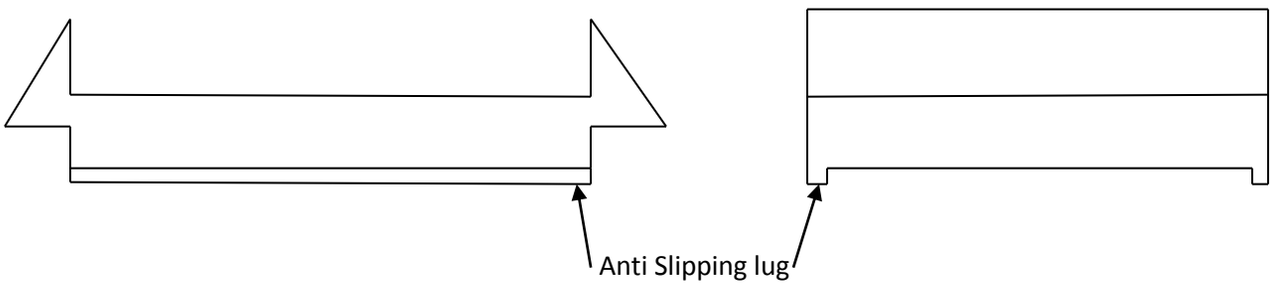
The Photograph No.02 shows The modified **37 mm packing piece with Anti slipping lugs** on eitherside to prevent the movement of the packing longitudinally.

The Photograph No. 03 & 04 shows the assembled view of the adaptor, Elastomeric pad and the modified 37 mm packing piece with slipping future.

SUGGESTION:

- TO AVOID THE SHIFTING OF PACKING PIECE AN **ANTI SLIPPING LUG** IS RECOMMENDED ON EITHER SIDE OF THE 37 M.M PACKING ON LONGITUDINAL DIRECTION.
- THE EXISTING PADS MAY BE GIVEN STEEL STRIPS OF SUITABLE SIZE (50 X 40 X 5 M.M) AS SHOWN IN PHOTOGRAPH WELDED WITH AUSTENITIC STAINLESS STEEL ELECTRODE. (OR)
- THE ALTERATION MAY BE GIVEN FROM THE **MANUFACTURING STAGE BY A STRIP OR STOPPER PROVISION THROUGHOUT THE LENGTH OF THE 37 M.M PACKING.**

RECOMENTED MODIFIED 37 M.M CASTING WITH INTEGRAL ANTI SLIPPING LUG



SSE/NC/GOC/SOUTHERN RAILWAY

1. PEDESTAL JAW AND ADAPTOR WITH SHIFTED 37MM PACKING .

2 37 MM. PACKING WITH ANTI SLIPPING LUG

3,4 ASSSEMBLED POSSITION OF 37 MM PACKING WITH ANTI SLIPPING LUG



THANK YOU SIR