INNOVATIONS/IMPROVEMENTS

1. Modification to Coach Dirt Collector:

As per CME/MAS letter No. M/CW/271/BB dated 01.07.2010, the dirt collector of SLR coaches have to be opened for draining out the dust and moisture accumulated in the bottom of the dirt collector during every pit examination. For the above purpose, a modification is made in the Dirt collector by Coimbatore coaching depot to drain out the dust and moisture accumulated in the bottom of the dirt collector without opening the spindle. Two 5 mm holes are made in the spindle of the dirt collector with provision of isolation cock. This will facilitate draining of moisture and dust easily even with air pressure and avoiding damages to the threads of the spindle by opening during every trip examination.

The modified dirt collectors with draining facilities are fitted in coach Nos. SR SLR 96764 and SR GSRD 08701 and running in 12679/12680 CBE-MAS-CBE Intercity Express from 02.03.2011 onwards.
2. To identify and rectifying the brake binding in coaches

Brake binding in coaches will cause detention to the running trains. The guard of the train is a non technical person with limited knowledge in C&W working and he may find difficulty in identifying the location of the brake cylinder piston position. Particularly in bogie mounted brake system, where in brake application / binding may be left out unnoticed by GDR. In order to ensure proper and complete release of brake in the coaches, an innovation was made on a trial basis in coach No. SR CN 98339 at CBE coaching depot.

This arrangement consists of a small pneumatic cylinder, pressure gauge, red and green indicating lamps connected through an electrically operated limit switch. When there is a brake binding due to air pressure locked inside the brake cylinder will be reflected in the pressure gauge and red light will glow.

On seen the red light the GDR can easily identify the brake binding coach and the same can be rectified. When the air pressure in the cylinder gets completely released, the air pressure gauge shows ‘0’ Kg/Cm² and green light glows.

Thus if red light glows and pressure is indicated in the gauge it is an indication of brake binding where attention is required. If green light glows and ‘0’ Kg/Cm² is noticed, it is identification of no brake binding.

The total cost of this arrangements is around Rs. 2130 / coach.
3. MODIFICATION TO SLR COACH LUGGAGE DOOR

A modification is done by CBE depot in coach No. SR SLR 97728 of 2673 Exp for luggage door to avoid disengagement of rollers from rails during opening. One ‘L’ shaped stopper is provided and welded at the door way of luggage door. Another one plate is provided and welded over the luggage door. During opening of luggage door the plate will hit against the stopper and avoiding complete opening of door thereby the door rollers will not disengage from the rails.

![Stoppers welded over the body on the doorway and on the door of SR SLR 97728](image1)

![Engaging of stoppers in SR SLR 97728](image2)

4. MODIFICATION TO COACH INDICATION BOARD

The integrated rake link of Yercaud/Hyderabad Exp (16670/12603/ 12604/16669) running from ED-MAS-HYB-MAS-ED has to be provided with 2 type of Indication Boards. Previously 16670/16669 Yercaud Exp and 12603/12604 Hyderabad Exp were written on one board, which resulted confusion to the boarding passengers at Chennai Central. In this regard complaints were received through SMR/MAS.

To alleviate this problem, the Indication Board has been suitably modified at ED. The Indication Board has been provided with one extra plate at centre with two hinges by which, when the plate is swiveled down, ED-MAS-ED Yercaud Exp is visible. When swiveled up, MAS-HYB-MAS Hyderabad Exp is visible. The hinged plate has to be swiveled at MAS and can be done without any difficulty.
Train no. 16670/12603/12604/16669

Old Coach Indication board

Modified with plate and hinge Locked at top

Swiveled down showing Yercaud exp
5. **INSULATION TO STEAM LOCO BOILER**

During the year 2002 one coal fired X Class Steam Loco in NMR section has been converted as oil fired steam loco working with Furnace oil. After this conversion 4 coal fired locos have been converted as oil fired locos and one new loco has been indigenously manufactured at GOC shop as oil fired loco.

From the introduction of this oil fired locos there is a long standing problem facing by the Steam Loco Crew that the loco cabin temperature is very high and it is difficult to work especially at the time of passing in tunnel. Many complaints were received from the running staff regarding the high cabin temperature. This problem was discussed with CMPE/DSL/MAS and technically decided to go for thermal insulation of Boiler and its allied steam components.

Accordingly a work order has been issued to M/s Rockford Engineering Company, Palakkad, Kerala at a total cost of Rs.95,000/- for insulation with Industrial Boiler Insulation method to one oil fired steam loco No.X 37392 on trial basis. The above insulation work was carried out by the firm and completed on 31.08.2011.

Trials were conducted and found that the cabin temperature was reduced to 8° to 9° Celsius. This loco is under observation for the sustained performance. If the results are satisfactory, this method of insulation can be further extended to other oil fired locos also. So that the high cabin temperature problem will be resolved permanently to certain extent.
6. **Modification in AC Coach:**

In the existing AC coaches, the inside door if fully opened with force, will come and hit on the panel of the side support provided to that berth near the door. This may result in injury to the fingers of the passenger who inadvertently keep them at that place.

**Suggestion:**

A 1 ½ inch long nylon door bush if fixed on that side support panel at a suitable location, will provide the necessary clearance between the door and the side support panel, even if the door is fully opened, will prevent a probable injury.

This innovative idea suggested by Basic Training Centre/Erode has been incorporated in Coach No. SR ACCW 01057 (A1 Coach), near berth NO.46, of T.No.6670 of 26.04.12.

Further the design of the existing door hook bracket fixed on the side support of the side lower berth near the coach inside door, meant for keeping that door in open condition, may suitably be changed and relocated so as to prevent injury. This modification may be done during POH.

![Image of door damage](image1)

*Less clearance which may cause an injury entangled*

![Image of door hook](image2)

*Possibility of finger getting entangled*

![Image of door bush installation](image3)

*Clearance after fixing the bush*

![Image of enough clearance](image4)

*Enough clearance to prevent injury*
Location of the proposed fitment of the bush
7. **Wheel skate unit**: Provision of Wheel Skate unit in every ART is one of the recommendations by High Level Committee on Disaster Management. This unit is used at accident for clearing the axle broken / axle jammed rolling stock to the nearest station by placing the affected wheel set over the above unit and moved with cautious speed.

Based on the above, a budgetary quotation was obtained from the manufacturers of Wheel Skate unit like M/s. LUKAS Company during last year and found the cost of their unit is more than Rs.10 lakhs.

It was decided by SA Division to manufacture the unit locally at ED depot itself for the ART special stationed at ED to save such a huge amount to Railways. The Wheel Skate unit or otherwise called trolley toeing equipment is locally manufactured at ED sick line with the available materials without procuring any materials from outside, men and equipments without spending any amount for materials and for machining.

The locally manufactured Wheel Skate unit is subjected to trial on 29.02.12 including on crossings & curves and found serving the same purpose of Wheel Skate unit supplying by M/s. LUKAS Company.

The Wheel Skate Unit is manufactured at ED with available man power those who are engaged in the maintenance of ART and saved an amount of more than Rs. 10 Lakhs to Railways.