

***Emergency Provision
in Coaches***

Emergency Provision

Even though all efforts are taken for safe running of trains by taking maximum safety measures, it is likely that untoward incidents takes place during the running of trains.

Emergency Provision

Based on the previous experience during emergencies, different provisions are made for prevention of major incidents and to reduce the impact after an accident .

Emergency Provision

SOME OF THE EMERGENCY PROVISIONS IN COACHES ARE;

- **Passenger Emergency Alarm Device**
- **Guard Emergency Valve in Brake Vans**
- **Fire Extinguishers in Coaches**
- **Emergency Windows in Coaches**
- **Electrical Equipments in SLRs**
- **Communication Equipments in SLRs**

Emergency Provision

- Other Equipments in SLRS like Stretchers, wedges, Bye pass couplers etc.
- Emergency LED lights powered by battery in all coaches in the case of power failure
- Flash back arrester in the gas pipeline of WCBs
- First Aid box with Guard
- Adoption of Crash worthy features in coaches

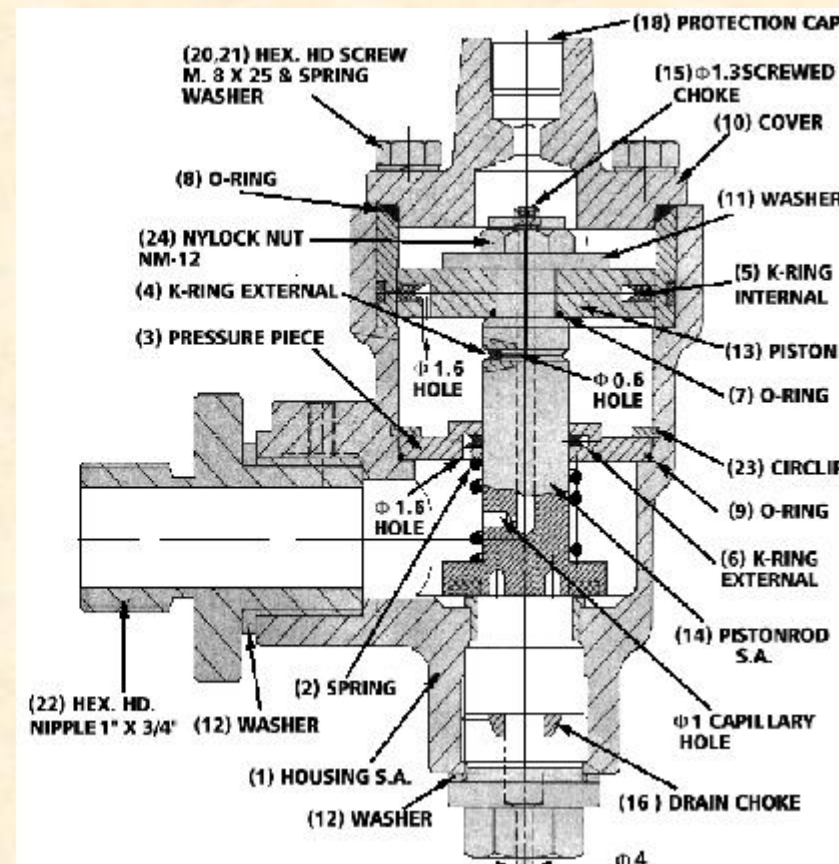
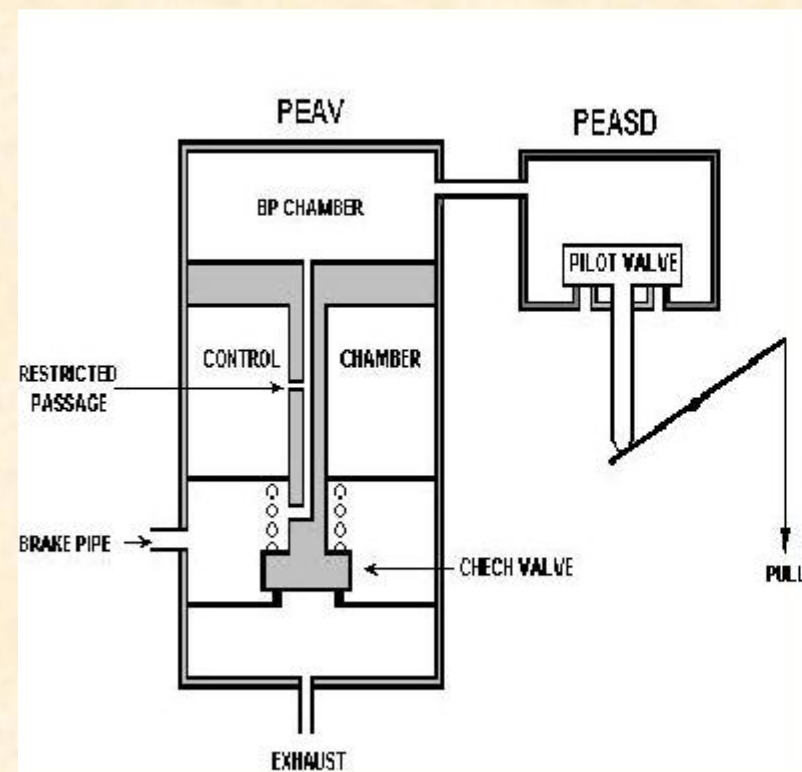
Passenger Emergency Alarm Device

In case of emergency during the journey, this provision is given for the passengers to stop the train.

An emergency alarm chain is provided inside every coach, pulling of this chain leads to brake application in the train and the train stops.



Passenger Emergency Alarm Device



Passenger Emergency Alarm Device

Initial design of the system was to indicate the drop of brake pipe pressure to the driver and he has to apply the brakes, however present design initiates the brake application on pulling the chain.

- The choke of the Passenger Emergency Valve has been increased to **8 mm** for ICF conventional coaches.



Emergency Pull Box

- LHB coaches are also provided with Emergency pull box inside the coach which actuates the PEAV which is kept outside. The resetting has to be done from inside
- The choke of PEAV in the case of LHB is **19 mm**.



Guard Emergency Valve

In the case of emergency, noticed by the Guard, the brake van is provided with Guard Emergency Valve (GEV), that can be used for stopping the train. This is normally operated by the Guard of the train.

The GEV is designed with the choke of **8 mm** and the train stops when this valve is operated. The guard has to use this judiciously duly communicating with the driver.

Provision of Fire Extinguishers in Coaches

Fire Extinguishers are provided inside the coaches to extinguish the fire in the initial stage itself before it spreads.

DCP type 5 Kg capacity is standardised for provision in the coaches. It should be ensured that the Fire extinguishers are serviced once in 3 months and recharged once in a year based on the quality of the chemical powder.



Provision of Fire Extinguishers in Coaches

**No. of Fire Extinguishers provided in each type
of coaches;**

AC Coaches : 2 Nos per coach

SLRs : 2 Nos per coach

WCB : 4 Nos per coach

**The Guard/Loco Pilot of the train as well as
the manager of WCB should be conversant
with operation of these type of Fire
Extinguishers**

Emergency Windows

Past experience, have shown that the passenger who were trapped inside the toppled coaches were finding it very difficult to reach the door for their exit. Some times the door also is found to be jammed making it impossible for the passengers to escape by themselves.

Emergency openable windows are provided in passenger coaches to facilitate the escape of passengers whenever the train is involved in accident/toppled.

Emergency Windows

Railway Board has given instruction to provide Emergency Openable Window in all passenger coaches.

It has to be ensured that all newly manufactured coaches and coaches turning out after POH are provided with Emergency Openable Windows by the NTXR's of the workshops/production units. Coaches without this provision has to be rejected while turning out from the Workshops

Emergency Windows

Non AC Coach:

Four numbers of Emergency Openable Window, two on either side of the coach has to be provided, usually the third bay from both ends are provided with this facility. (ICF Drg No DMU/DPC 5-4-002 & ICF STD 5-4-005)

A pictorial instruction is provided for using the emergency window for the benefit of passengers



Emergency Windows

Non AC Coach

The Window bars of these window are removed and a grill arrangement made out of 12 mm OD tubular section fabricated as per the drawing is provided inside the windows, this slides up in the channel of window sills, while lifting /lowering. Shoot out bolt arrangement is also provided to lock the window grills in position.

Further semi permanent locking arrangement is also made available to ensure the grill is always kept in the lowered position for the safety of the passengers. The grill is kept in place and locked by a pin on the top left side, the pin is enclosed in a small metallic box covered with glass, the glass has to be broke open and the pin pulled out to lift the window grill.

Emergency Windows

AC Coach:

AC coaches also has to be provided with four Emergency windows two on either side of the coach, generally the third bay from both ends are provided with this facility.

(RDSO sketch Sk.98161 alt-1)



Emergency Windows AC Coach

The emergency windows are provided with facility to pull out the rubber beading, which makes the complete window glass unit free to be removed from the window for the exit of the passengers.

In addition to the above, a hammer with sharp pointed tip is provided in the AC coaches near the entrance in a glass case, which has to be removed and used for breaking the glass panes of the windows in case of emergency.



*Indication of Emergency Window inside
the coach - AC 3Tier*



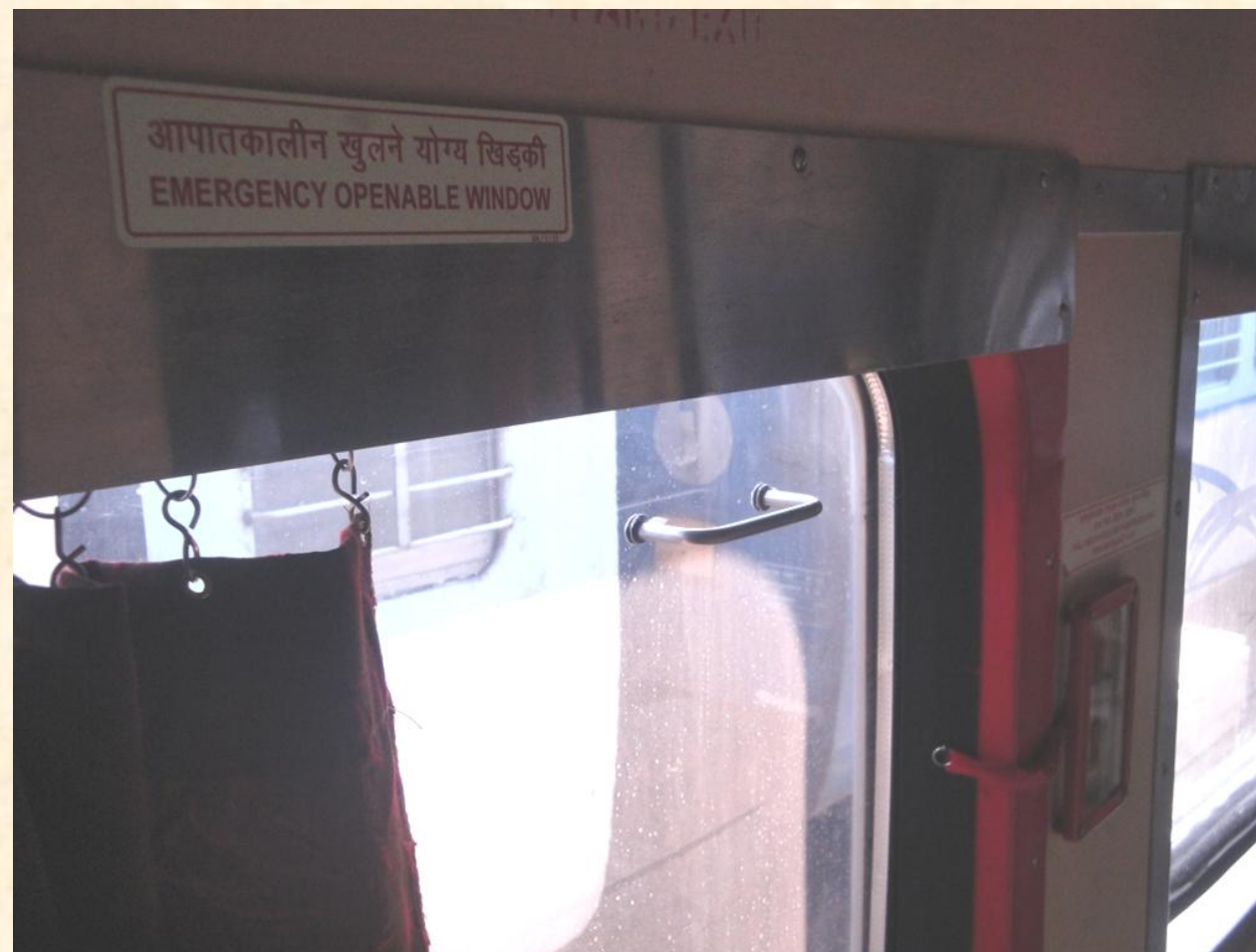
Location: 3rd Bay from either end

Inside View AC 3Tier



Location: 3rd Bay from either end

Inside View FAC



Location: 3rd Bay from either end

LHB Inside View of Pull handle



Location: 3rd Bay from either end

AC 2 Tier with pelmet hinged



AC 2 Tier with pelmet hinged



Inside View of Shatabdi Chair Car



Location: 3rd Bay from either end

*Emergency window
hinged at side*



Emergency window hinged on top



Inside view in Sleeper Class



Location: 3rd Bay from either end

Out side View WCB



Location: 3rd window from either end in the corridor

Inside view WCB



*Inside view
Manager's Cabin (WCB)*



***Emergency Glass Breaking Hammer
located inside the coach near Bed Roll
area***



Inside View of Shatabdi Executive Chair Car



Location: 3rd Bay from either end

*Out side view of
DEMU coach*



Location: 4th window from either end

Out side view of chair car



Location: 5th window from either end

Outside View of AC 3 Tier Rajdhani



Location: 2nd 5th 7th bay either side

Inside View of FAC



Location: 3rd Bay from either end

Inside view of AC 2 Tier



Location: 3rd Bay from either end

Out side View of AC 3 Tier



Location: 3RD bay either side

Out side View of SLR



Location: 2nd Bay

Out side View of SLRD



Location: Centre window

Electrical Equipment in SLR

Portable Emergency Lighting equipment is provided as one of the mandatory Brake Van Equipment in SLR.

This will be used by the Guard in the case of emergency during night. The box contains a hand held lamp with 20 metres cable and a stand with two flash lights also with 20 metres cable. The power to be tapped from the batteries or EFT of coaches.

Maintenance of this equipment is with the SSE/Elec.



Communication Equipment in SLR

Portable Telephone Equipment is on of the mandatory Brake Van Equipment provided in the SLR.

The Guard uses this during emergency for communicating with control. Every KM of track, junction box is made available for connecting this equipment

The maintenance responsibility of this equipment rest with SSE/Sig



Other Brake Van Equipment

Stretcher:

One Stretcher is provided in the SLR, which has to be used by the Guard in case of emergency to transport the injured.

Station Master has to ensure the availability of this item in all the SLRs



Other Brake Van Equipment

Wedges:

Two wooden wheel wedges are provided in the SLR for securing a train without rolling of the coaches/wagons in the case of Accident/parting.



Other Brake Van Equipment

Bye-pass coupler:

A pair of Bye-pass couplers are provided in the SLR to provide coupling between FP and BP, whenever a Brake pipe of the coach damages. The particular coach will be bye-passed to have brake power for the other coaches in the rear of the formation. The train will run with single pipe system.

Availability of Wedges and Bye-pass couplers are to be ensured by C&W Engineers



Emergency LED lights

All the newly manufactured coaches, as well as the coaches turned out after POH are provided with emergency LED lights in the corridors of the coaches which automatically lights in the case of power failure inside the coaches during night to facilitate the movement of passengers during accident in the night.



Flash back arrester in the gas pipeline of WCBs

Pantry cars are provided with centralised gas pipe line system for cooking. All the gas cylinders are kept in the cylinder room and connected to the centralised gas pipe line. A flash back arrester is connected between the centralised gas pipeline and cylinder room so that in case of leakage out side it arrests the flash of this fire towards the cylinder room and avoids a major disaster of the cylinder getting exploded.

Flash back arrester in the gas
pipeline of WCBs



Fire detection and suppression system in WCB and Power car



Pantry cars and Power cars are being provided with Fire detection and suppression system.

Fire detection and suppression system in WCB and Power car



Smoke/Heat Sensor



Audio visual Indicator

Fire detection and suppression system in WCB and Power car



Sprinkler for suppression of fire

Fire detection and suppression system in WCB and Power car



Nitrogen Cylinder



Water Cylinder

First Aid Box

First Aid Box is one of the item issued to the Guards of the Passenger trains. The items in the First Aid Box has to be regularly (once in three months) replaced with fresh items so that no medicine or other sterile items are past the expiry date.

The Guard of the train has to use this in case of emergency to give first aid to the injured passengers to avoid aggravation of injury.

Gas leak detector in WCBs

Pantry cars in Railways are using LPG for cooking purpose and these are highly inflammable and very dangerous to handle. Leakage of the gas will lead to major disaster. To prevent such incidents, gas leak detectors has to be provided in the pantry cars so that the valves between the gas room and the pipe line can be closed in advance before major fire occurs.

Thank You

Flash back arrester

