

## IS RAILWAYS READY TO GAIN FROM LHB COACHES?

*By K.V.Ramesh, Sr.JGS/IRTSA, rameshirtsa@yahoo.co.in*

### Readiness of departments other than mechanical also need to be evaluated

Indian Railways is in fast mode to increase new generation LHB coaches in its fleet. IR has taken a decision to stop manufacturing ICF designed coaches and to manufacture only LHB designed coaches from the near future. Newest of three coach manufacturing units of IR at Raibarely has been installed to produce only LHB coaches with the capacity of 1000 coaches per year. Coach Factory at Kapurthala is in advanced stage to switch over to 100 percent LHB production and ICF Chennai scheduled to switch over within two year, ICF is also gearing up for implementation of its biggest new project since its inception.

Advantages of LHB coaches are lighter in weight, run in high speed, high passenger capacity, more safe due to centre buffer coupler instead of screw coupling in old design, more life, less maintenance, less noise, energy efficient because of end on generation and improved raiding index.

But Indian Railways need to synchronize its improvements in other departments especially in civil & Signal engineering. Platforms of Indian Railways are designed to accommodate 24 coaches train formation of ICF designed coaches with total length of 512 meter. Total length of 22 LHB coaches train formation is 528 metres, out of these 22 coaches 2 will be generator cars which will not carry any passenger. Effectively 20 coaches are used to carry passengers in LHB train formation. As a net effect it brings down the passenger carrying capacity of train formation.

For example take the case of Pandian / Rock Fort Express train formation, Old 24 ICF coaches train formation had passenger capacity of 1492 and freight capacity of 16 tonne with 1200 tonne gross weight of train formation. New 22 LHB coaches train formation is having the passenger capacity of 1458 and freight capacity of 8 tonne with 1110 tonne gross weight of train formation. WAP-7 AC electric loco can haul 1430 tonne passenger train at a speed of 130 kmph. Despite of the fact that LHB coach formation is lighter by 15.75%, passenger capacity is reduced by 2.3% and freight by 50% for the Pandian / Rock fort express trains as illustrated in the table below,

Rake for 12637/38 Pandian Express & 16177/78 Rock fort express										
	LHB DESIGNED COACHES FORMATION				ICF DESIGN COACHES FORMATION				% difference in passenger carrying capacity of LHB over ICF	Weight reduction of LHB formation over ICF formation in %
	No of coaches	Gross weight Tonne	Length over buffer mm	Passenger capacity numbers	No of coaches	Gross weight Tonne	Length over buffer mm	Passenger capacity numbers		
EOG	2	113.56	48000							
SLR					2	108.72	42672	48	-100.0 %	
GS	2	100.98	48000	200	2	98.2	42672	180	11.1 %	
1st AC	1	43.34	24000	24	1	55.5	21336	22	9.1 %	
AC Comp	1	43.34	24000	38	1	53.13	21336	30	26.7 %	
AC 2 tier	2	93.44	48000	108	2	112.2	42672	92	17.4 %	
AC 3 tier	4	195.2	96000	288	4	229.6	85344	256	12.5 %	
Sleeper	10	421.9	240000	800	12	543.6	256032	864	-7.4 %	
Total	22	1011.76	528000	1458	24	1200.95	512064	1492	-2.3 %	15.75%
Freight Capacity				8 Tonne				16 Tonne	-50 %	

### Suggestions:

1. Length of platforms need to be increased by 70 metres to accommodate 24 LHB coaches formation trains and corresponding alteration in signal positions.
2. Roof mounted solar panels in all LHB coaches to reduce number of DG sets. Space released can be utilized for parcel movement.