

भारत सरकार GOVERNMENT OF INDIA  
रेल मंत्रालय MINISTRY OF RAILWAYS  
रेलवे बोर्ड RAILWAY BOARD

No.2000/M(N)/60/2/Wagon Census

New Delhi, dated 23.7.13

The Chief Mechanical Engineer  
Northern Railway, Baroda House, New Delhi

The Chief Mechanical Engineer  
Southern Railway, Chennai

**Sub: Road Railer Services on Indian Railways**

Kirloskar Pneumatic Company Limited (KPCL) has developed an innovative bimodal concept of "RoadRailer". RoadRailer Units are capable of movement on road as well as rail. A technical brief of RoadRailer provided by M/s KPCL is enclosed. The RoadRailer combines the first and last mile benefits of road with speed, safety and economy of rail for seamless door-to-door transportation of goods.

With a view to increasing Indian Railways' share of goods traffic presently moving by road transport, Indian Railways has entered into an Agreement with M/s KPCL for Haulage of RoadRailer Trains on Delhi-Chennai sector as a pilot project for two years to establish the operating and financial viability of RoadRailer.

The RoadRailer Equipment consists of "RoadRailer Unit", "RoadRailer Middle Adapter Bogie" and "RoadRailer End Adapter Bogie". Unlike conventional rail operations, the RoadRailer bogies after every trip shall be separated from the RoadRailer Unit which shall proceed for road movement for the last mile delivery of transported goods and collection of further goods for the return trip.

As per the Agreement with M/s KPCL, bogies of RoadRailers will be maintained by Indian Railways. Each bogie shall be uniquely identified by a **Bogie Identification Number (BIN)** which shall be given by M/s KPCL. The following system for nomenclature of RoadRailer bogies has been agreed upon:

Manufacturer Name			RoadRailer Bogie Type				Variant	Owner Code		Built Year		Individual Bogie No.			
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
K	P	C	R	D	R	E or M	A	4	1	1	3	X	X	X	X

For example, the Bogie Identification Number (BIN) for an End Adapter Bogie owned by M/s KPCL, built in the year 2013 to the current variant design would be:

**KPC/RDR-E/A/41-13-0001**

where the individual bogie numbers would change with the count of the bogie. Similarly, for the Middle Adapter Bogie, the RoadRailer Bogie Type code would be RDR-M.

In order to maintain the traceability of bogies across different Railways and in order to enable maintenance of bogie history by M/s KPCL, **the Bogie Identification Number (BIN) given by M/s KPCL should be used by Zonal Railways for record-keeping.** Zonal Railways may also arrange to train their staff in operation and maintenance of RoadRailer Equipment.

*A. Mittal*

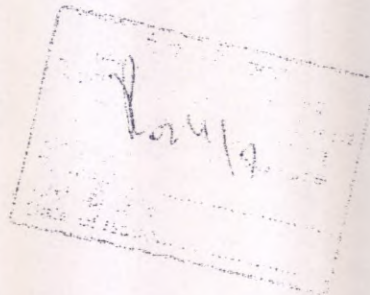
(Archana Mittal)  
Dir. Mech. Engg. (Frt.)

Encl: As above

Copy to:

1. CMEs/All ZRs For information pl.  
except  
CME/NR and  
SR
2. EDS(W), RDSO (i) For issue of instructions for examination of Road Railer  
Trains to Zonal Railways  
(ii) The wagon numbers allotted vide Railway Board's letter  
no. 2000/M (N) /60/2/ WAGON Census dated  
28.02.2013 may be treated as RoadRailer Unit (RRU)  
numbers.
3. M/s. Kirolskar With reference to their letters number  
Pneumatic Co. RR/MP/DIRMECH(F)/RB/13-14 dated 10.4.13 and  
Ltd. 607, 22.4.13.  
Manjusha  
Building, 57,  
Nehru Place,  
New Delhi-  
110019

*1. Issue  
MS  
24/7/13*



## **Brief Note of Technical Details of RoadRailer**

### **Introduction to the RoadRailer Concept**

RoadRailer, a Bi-modal rolling stock, addresses the first and last mile issues associated with conventional rail transport and combines the flexibility of door pick-up/door delivery of road with speed, safety, economical operation of rail.

RoadRailer is an intermodal concept that optimizes the use of Road and Rail mode of goods transport in providing seamless door to door service without transshipment of goods. It is proven concept that is prominently in use for near about three decades in USA. Undoubtedly, this unique concept is most suited for India with its vast Railway network. With well equipped terminals as hubs and the adjoining industrial areas as spokes this concept provides seamless transportation of goods with all the advantages of safety, speed, economy and of course reduction in road congestions as well as pollution.

The concept makes use of Semi-Trailer unit referred to as a RoadRailer Semi Trailer which is equipped with special slack less coupling arrangement and a sliding tandem Air Suspension assembly. In addition there are RoadRailer Middle Adapter Bogies which are bare bogies with suitable arrangements used to couple two RoadRailer units and RoadRailer End Adapter or Couplermate Bogie which too is a bare bogie equipped with CBC coupler to attach the locomotive.



**RoadRailer Semi Trailer in rail mode**



**RoadRailer Semi Trailer on road mode**



**RoadRailer Middle Adaptor Bogie**



**RoadRailer End Adapter or Coupler mate Bogie**



RoadRailer Prototype Rake with Tyres shown lifted clear off the Rails

### Technical Data

S. No.	Description	Bi-Modal RoadRailer (RR) In Rail Mode
1	Unit in rail mode	Single (Articulated) equivalent to 4 Wheeler
2	Bogie Type	CASNUB 22 HS
3	No. of Axles per Bogie	2
4	Max. Axle Load - Tonnes	20.3
5	Tare weight - Tonnes	<ul style="list-style-type: none"> <li>• RoadRailer (RR) Semi Trailer = 6.3</li> <li>• RR End Adapter Bogie = 9.27</li> <li>• RR Middle Adapter Bogie = 7</li> </ul>
6	Payload per Unit - Tonnes	27.3 T
8	Maximum rake size - Nos.	50
9	Maximum Rake Composition*	50 RoadRailer Semi Trailer Units, 49 RoadRailer Middle Adapter Bogies and 2 RoadRailer End Adapter Bogies
9	Max. Gross RR Train load - Tonnes	2041.54

Note : \* A GA drawing of RoadRailer Rake Arrangement is enclosed for ready reference

### RoadRailer Operations

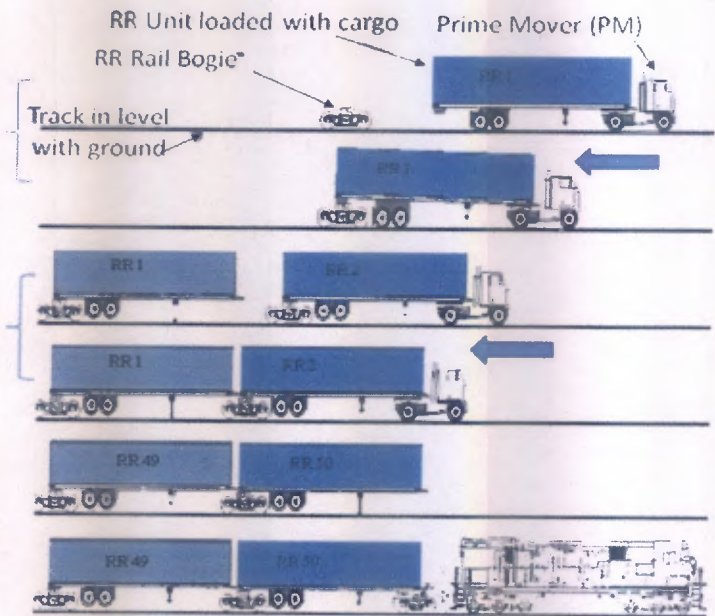
A RoadRailer unit is hauled by a road Prime Mover at the place of origin for collection of Goods from a consignor's place which could be a factory / warehouse and for delivery to the door step of consignee.

Individual RoadRailer units loaded with cargo are brought to a rail terminal for formation of RoadRailer rake on a track which is flush with the ground for easy movement of RoadRailer units over the track. A

RoadRailer Rake is formed by coupling individual RoadRailer units with Middle Adapter Bogies which are then coupled together to form a rake as explained below. RoadRailer unit in the front and rear end of the rake are coupled to Couplermate Bogie.

### Illustration of RoadRailer Terminal Operation

1. First RR unit is aligned with RR rail bogie positioned on track. It is then pushed back by PM to couple with top of RR rail bogie
2. With the RR unit resting on its landing gear & bogie, PM couples 2nd RR Unit with another RR bogie further ahead on track and the combination is pushed back to couple with the first unit.
3. Likewise 50 RR units are coupled together in blocks to form a rake.
4. RoadRailer rake is pulled by a locomotive to destination where reverse operations are carried out and individual RR unit is taken for door delivery of cargo.



### Development of RoadRailer in India

KPCL in technical collaboration with Wabash National Corporation and with the support/guidance from RDSO have successfully developed RoadRailer system suitable to operate on Indian Railways.

For rail operations, Casnub 22 HS cast steel Bogie has been adapted to function as a RoadRailer Bogie. RoadRailer Bogies are equipped with the BMBS currently used on IR wagons for braking application.

RDSO have conducted Oscillation trials on RoadRailer prototype rake and have cleared RoadRailer system for maximum operating speed of 100 kmph on IR network. The RoadRailer system also successfully completed the field trials conducted by RDSO between JNPT, Mumbai and Nagpur.

RoadRailer units provided with Air Suspensions have also been successfully tested at VRDE, Ahmednagar over different harsh test tracks meant for testing of Defence vehicles. These Air Suspensions will provide excellent ride qualities which will ensure safe and damage free transportation of a variety of sensitive white goods, automobiles and similar cargoes.

KPCL has set up a manufacturing facility at its Nasik plant for the manufacture of RoadRailer equipment and rakes. The first RoadRailer service will be launched as PILOT PROJECT shortly on Delhi – Chennai sector by the Indian Railways and Kirloskar Pneumatics.