

# Rolling Stock

## Locomotives:

The size of IR's fleet of locomotive stock as on 31st March, 2017 consisted of 39 steam, 6,023 diesel and 5,399 electric locomotives. The number of locomotives, traction-wise, along with their average tractive effort is as follows:

Year	Number of locomotives				Tractive effort per loco (in kgs.)	
	Steam	Diesel	Electric	Total	B.G.	M.G.
1950-51	8,120	17	72	8,209	12,801	7,497
1960-61	10,312	181	131	10,624	14,733	8,201
1970-71	9,387	1,169	602	11,158	17,303	9,607
1980-81	7,469	2,403	1,036	10,908	19,848	10,429
1990-91	2,915	3,759	1,743	8,417	24,088	12,438
2000-01	54	4,702	2,810	7,566	29,203	18,537
2010-11	43	5,137	4,033	9,213	34,380	18,304
2014-15	43	5,714	5,016	10,773	36,954	17,950
2015-16	39	5,869	5,214	11,122	37,483	17,853
<b>2016-17</b>	<b>39</b>	<b>6,023</b>	<b>5,399</b>	<b>11,461</b>	<b>37,808</b>	<b>17,746</b>

Traction wise, average tractive effort per loco (Kgs.) for last four year is given below:

Year	Broad Gauge		Metre Gauge	
	Diesel	Electric	Diesel	Electric
2012-13	35,252	36,909	19,009	-
2014-15	36,520	37,420	18,974	-
2015-16	37,186	37,801	18,896	-
<b>2016-17</b>	<b>37,633</b>	<b>37,995</b>	<b>18,948</b>	<b>-</b>

## Coach upkeep:

844 old coaches were given mid-life rehabilitation and 459 coaches were refurbished which brought substantial improvement in the condition of flooring, toilets and other passenger amenities.”

Passenger Carrying Vehicles (PCVs) with aggregate seating capacity in different years and availability of Other Coaching Vehicles (OCVs) are shown below:

Year	EMU Coaches		Passenger Coaches		DMU/DHMU		Other Coaching Vehicles (Number+)
	Number	Capacity \$	Conventional Coaches		Number	Seating capacity	
			Number @	Seating capacity			
1950-51	460	87,986	13,109	854,678	-	-	6,059
1960-61	846	150,854	20,178	1,280,797	-	-	7,415
1970-71	1,750	340,541	24,676	1,505,047	-	-	8,719
1980-81	2,625	500,607	27,478	1,695,127	-	-	8,230
1990-91	3,142	609,042	28,701	1,864,136	-	-	6,668
2000-01	4,526	859,701	33,258	2,372,729	142	13,884	4,731
2010-11	7,292	13,64,948	45,082	32,54,555	761	74,097	6,500
2014-15	8,571	15,45,929	51,838	37,27,998	1,248	1,22,081	7,000
2015-16	8,805*	15,78,868*	53,171*	37,94,954*	1,469*	1,36,594	6,704*
<b>2016-17</b>	<b>9,125</b>	<b>16,46,880</b>	<b>53,483</b>	<b>39,37,039</b>	<b>1,615</b>	<b>1,60,127</b>	<b>6,714</b>

\$ Includes standing accommodation.

@ Includes Rail Cars.

+ Includes luggage vans, mail vans, parcel vans, etc.

\* revised

## Wagons:

As on 31st March, 2017, the size of IR's wagon fleet consisted of 2,77,987 units 66,716 covered, 1,55,795 open high-sided, 15,115 open low-sided, 25,934 other types and 14,427 brake vans/departmental wagons:

Year	Total wagons on line (In units)	Percentage of total number of wagons					Total
		Covered	Open high sided	Open low sided	Other types	Departmental	
1950-51	205,596	58.9	25.5	3.4	7.2	5.0	100
1960-61	307,907	57.3	25.5	2.5	10.6	4.1	100
1970-71	383,990	53.4	25.6	1.8	13.0	4.2	100
1980-81	400,946	53.3	28.3	3.2	11.8	3.4	100
1990-91	346,102	49.1	29.6	3.6	14.4	3.3	100
2000-01	222,193	34.1	41.0	3.6	17.5	3.8	100
2010-11	229,987	26.6	52.8	3.1	12.0	5.6	100
2014-15	2,54,018	26.0	53.8	6.0	8.8	5.4	100
2015-16	2,51,295	24.9	55.0	5.5	9.3	5.3	100
<b>2016-17</b>	<b>2,77,987</b>	<b>24.0</b>	<b>56.1</b>	<b>5.4</b>	<b>9.3</b>	<b>5.2</b>	<b>100</b>

Carrying capacity per wagon on broad gauge and metre gauge are indicated below :

Year	All Gauges		Broad Gauge		Metre Gauge	
	Total number of wagons\$ (000)	Total capacity (Million tonnes)	Number\$ (000)	Average capacity (Tonnes)	Number\$ (000)	Average capacity (Tonnes)
1950-51	195	4.14	149	22.6	43	17.1
1960-61	295	6.30	207	23.1	83	18.0
1970-71	368	9.35	271	27.8	91	19.1
1980-81	387	11.14	299	30.6	83	23.0
1990-91	335	11.50	276	36.9	55	22.9
2000-01	214	10.19	199	48.7	14	34.4
2010-11	217	12.18	213	56.6	4	33.0
2014-15	240	14.32	237	60.0	3	33.1
2015-16	237	14.39	235	60.8	2	33.7
<b>2016-17</b>	<b>263</b>	<b>15.98</b>	<b>261</b>	<b>60.9</b>	<b>1.9</b>	<b>33.2</b>

\$ Excludes departmental service wagons and brake vans

Some of the major types of wagons held by IR as on 31.3.2017 are shown below:

Type of wagon	Units available	Types of wagon fleet (B.G.)
		Brief description
BOX`N`	47,718	High-sided bogie open wagons with cast steel bogie, high tensile couplers, Cartridge Tapered Roller Bearings (CTRB), air brake, etc. for movement of bulk commodities like coal, iron ore etc.
BOXNHS	18,868	Bogie open wagon, air brake, high speed.
BOXNLW	2,182	Bogie open wagon, air brake, light weight.
BOXNCR	265	Bogie open wagon, air brake, made of corrosion resistant IRS M : 44 steel.
BOXNHA	767	Bogie open, air brake wagon of 22 t axle load with high side walls (higher than BOXN), designed for transportation of coal.
BOXNHL	53,404	Bogie open air brake, stainless steel wagon.
BOY	1,239	Standard Gondola wagon, air brake, to carry minerals/iron ore with an axle load of 22.9 t.
BCN/BCNA	41,211	Bogie covered wagon, air brake fully riveted/welded construction for transportation of bagged cement, food grains, fertilizers etc.
BCNAHS/BCNHS	8,897	Bogie covered, air brake, all welded & riveted construction with High Speed, bogie CASNUB-22 HS BOGIE.
BCNHL	18,532	Bogie covered, air brake, micro - alloy (stainless steel wagon).
BRN	1,309	Bogie Rail wagon Heavy, air brake.

BRNA/HS	5,200	Bogie Rail wagon Heavy, air brake, High Speed bogie, riveted cum welded construction.
BRHNEHS	1,560	Bogie Rail wagon, air brake, high speed CASNUB BOGIE for engineering department.
BFNS	713	Bogie Flat, air brake wagon, high speed for transportation of H.R. coils, plates, sheets & billets loading.
BOST/HS	8,419	Longer BOXNHS, air brake, wagon for finished steel products.
BOBR/N/HS	14,028	Bogie open rapid discharge air brake wagon for coal.
BOBYN	6,041	Bogie Hopper, air brake, bottom discharge wagon.
BOBSN	1,671	Bogie open air brake, side discharge wagon for iron ore.
BTPN	11,285	Bogie Tank wagon, air brake, for liquid consignments like petrol, naptha, ATF and other petroleum products.
BTFLN	922	Bogie Tank wagon, air brake with frameless body.
BTPGLN	91	Bogie Tank wagon, air brake, for carrying Liquified Petroleum Gas.
BLCA/BLCB	13,237	Low Platform Container Flat wagon, 840 mm wheel diameter, AAR'E' type centre buffer coupler and slack less draw bar system (privately owned).
BLLA/BLLB	440	Container Flat wagon, same as BLCA/BLCB, but with a Longer Platform of 45ft. (privately owned).

## Repair and Maintenance :

44 loco sheds and 212 carriage and wagons sick lines and central repair depots provide repair and maintenance facilities for the entire fleet of rolling stock. 45 workshops undertake periodic overhaul of Rolling Stocks.

The number of units of rolling stock given periodic overhaul (POH) in railway workshops during the year are given in the following table:

Type of Rolling Stock (BG+MG)	Periodic overhaul (Nos.) undertaken during the year	
	2015-16	2016-17
Diesel Locos	511	486
Electric Locos	465	436
Coaches	30415	30649
Wagons	49075	49663

## COFMOW

Central Organisation for Modernisation of Workshops (COFMOW) was established under the Ministry of Railways by Government of India for modernizing Indian Railways Workshops. The modernization project was funded through World Bank credits. Since its establishment in 1979 COFMOW has assisted in modernizing Indian Railways Production Units and maintenance workshops. This has involved purchasing over 21,331

machines valued at ₹5,895 crores. It continues its endeavor to provide crucial technical support to the various manufacturing & maintenance units of Indian Railways. It has now taken up turnkey projects of setting up workshops/expansion of workshops.

COFMOW is in a position to offer its services to those needing modernization or up gradation of their manufacturing/maintenance activities with enhanced productivity. COFMOW provides professional advice and procurement of machine tools and allied equipment.

**Salient Features**

- Bringing in state of the art technologies available worldwide in the field of M&P.
- Professional expertise in training staff, in the required area, by interaction with firms and studying the field requirements.
- Supports not only Mechanical units, but all the departments of Indian Railways vis-à-vis their M&P requirements.
- Up-gradation and compilation of specifications of all machines used in various workshops, maintenance sheds and Production Units.
- E-tendering all M&P items.
- Reverse Auction.
- Successive efforts for indigenization have led to FOREX savings.
- Setting up complete plants on composite, turnkey basis.

**Key Milestones :**

S. No.	Year	Fund Utilization (in Crores of Rupees)	Contracts Awarded
1	2015-16	443	368.87 Crs.
<b>2</b>	<b>2016-17</b>	<b>481</b>	<b>526.71 Crs.</b> <b>179.6 crs(works)</b>

**Turnkey Projects :**

COFMOW has recently embarked upon the journey of handling Turnkey composite works including machinery/plant, Civil and Electrical works, all executed in tandem.

**ICF Expansion Project:**

Composite Works contract for augmentation of production capacity for manufacturing of advanced LHB coaches (Cost. ₹127 Crores) has been

completed and handed over to ICF.

- More than 350 LHB shells have so far been manufactured from the facility.

### **Spring manufacturing facility for ICF:**

- A composite turnkey project for manufacturing of Coiled Springs at ICF/Chennai has been awarded @ ₹84 crores. Work is under progress.

### **Automatic Wheel and Axle Assembly Complex for RWF:**

- Composite project has been awarded @ ₹49.42 crores in May 2016 and work is under progress.

### **Augmentation of Wheel Shop at Matunga Workshop, Central Railway, Mumbai :**

- Project for Augmentation of Wheel Shop Capacity at Matunga Workshop has been awarded @ ₹62.00 crores and is under progress.

### **Creation of Wheels and Bogie Overhauling Facility /Central Railway, Mumbai:**

- Turnkey Project basis for Creation of Wheels and Bogie Overhauling Facility at Sanpada EMU Car Shed, Central Railway, Mumbai has been awarded @ ₹33.64 Crores.

### **Setting up of BG Coach POH Shed with holding capacity of 27 Non AC Coaches, Nagpur /SECR:**

- A Composite work on Turn Key basis for setting up of BG Coach POH Shed with holding capacity of 27 Non AC Coaches at Moti Bagh Workshop, Nagpur at the @ of ₹83.95 crores has been awarded and work in progress.

Besides the above Modernization and augmentation works of POH capacity to 150 wagons at Dahod workshop (Western Railway) and Augmentation of BG Coach POH capacity from 50 to 100 coaches at Bhavnagar Workshop are under progress.

### **Simulators :**

- A turnkey contract for 12 nos. Simulators have been awarded valued at ₹155 crores to enhance the skills of train drivers. 09 nos Simulators have been supplied and 06 have been commissioned.
- Another Turnkey project of 14 nos of Simulators at an estimated cost of ₹162.96 crs. has been floated.