

1.0 Rolling Stock:

1.1. Metro operation in Kolkata started in 1984 on an underground stretch of 3.4 km between Esplanade and Bhowanipore (now Netaji Bhawan). Initially, the rolling stock fleet comprised of 4-car rakes. Over the years there has been considerable expansion to the network, both underground and on elevated sections. The network currently consists of one operational line of 27.22 km from Noapara to Kavi Subhash. With the increase in traffic, 8-car rake formation has become a standard for Metro Railway, Kolkata. The rolling stock organisation, headed by CEE/RS, broadly comprises of two wings, viz. maintenance wing and operation wing.

1.2. Salient Data on Rolling Stock:

Rake MR100 Series	No of Rakes	2		
	Rake Composition	6 MC + 2 TC		
	Coach Length	19500 mm		
	Coach width	2740 mm		
	Coach Height	3700 mm		
	Tare Weight:	<u>DMC</u>	<u>NDMC</u>	<u>TC</u>
		40 T	40 T	29 T
	Gross Weight (with Dense Crush Load)	<u>DMC</u>	<u>NDMC</u>	<u>TC</u>
		58 T	58 T	47 T
	Total Horse Power of Rake	3036 HP		
	Maximum Acceleration	1.1 m/s ²		
	Max. Deceleration during braking	1.3 m/s ²		
	Type of Brakes	ED, EP, Auto, Emergency		
	Supply voltage	750 V DC (nominal) – 3 rd rail		
Designed Speed Potential	80 KMPH			

Rake MR200 Series	No of Rakes	6		
	Rake Composition	6 MC + 2 TC		
	Coach Length	19500 mm		
	Coach width	2740 mm		
	Coach Height	3700 mm		
	Tare Weight:	<u>DMC</u>	<u>NDMC</u>	<u>TC</u>
		40 T	40 T	29 T
	Gross Weight (with Dense Crush Load)	<u>DMC</u>	<u>NDMC</u>	<u>TC</u>
		58 T	58 T	47 T
	Total Horse Power of Rake	5221 HP		
	Maximum Acceleration	1.1 m/s ²		
	Max. Deceleration during braking	1.3 m/s ²		
	Type of Brakes	ED, EP, Auto, Emergency		
	Supply voltage	750 V DC (nominal) – 3 rd rail		
Designed Speed Potential	80 KMPH			

Rake MR300 Series	No of Rakes	13		
	Rake Composition	6 MC + 2 TC		
	Coach Length	19500 mm		
	Coach width	2730 mm		
	Coach Height	3625 mm		
	Tare Weight:	<u>DMC</u>	<u>NDMC</u>	<u>TC</u>
		47 T	47 T	35 T
	Gross Weight (with Dense Crush Load)	<u>DMC</u>	<u>NDMC</u>	<u>TC</u>
		66 T	68 T	55 T
	Total Horse Power of Rake	5449 HP		
	Maximum Acceleration	1.1 m/s ²		
	Max. Deceleration during braking	1.3 m/s ²		
	Type of Brakes	ED, EP, Auto, Emergency		
Supply voltage	750 V DC (nominal) – 3 rd rail			
Designed Speed Potential	80 KMPH			

Rake MR400 Series	No of Rakes	6		
	Rake Composition	2DTC+4MC+2TC		
	Coach Length	19500 mm		
	Coach width	2740 mm		
	Coach Height	3625 mm		
	Tare Weight:	<u>DTC</u>	<u>MC</u>	<u>TC</u>
		36.8 T	41.8 T	36 T
	Gross Weight (with Dense Crush Load)	<u>DTC</u>	<u>MC</u>	<u>TC</u>
		58.3 T	65 T	59.5 T
	Total Horse Power of Rake	3264 HP		
	Maximum Acceleration	1.1 m/s ²		
	Max. Deceleration during braking	1.3 m/s ²		
	Type of Brakes	Regenerative Braking, EP, Auto, Emergency		
Supply voltage	750 V DC (nominal) – 3 rd rail			
Designed Speed Potential	80 KMPH			

1.3. Maintenance of Rolling Stock:

1.3.1. Various maintenance schedules and periodicity thereof prescribed at present for the rolling stock are as under.

Daily Inspection	Every day
3-Day Inspection	Every 3 rd day
45-Day Inspection	After 45 days
6-Monthly Inspection	After 6 months
Annual Inspection	After 1 year
Periodic Overhauling (POH)	After 3,00,000 km of running or 5 years whichever is earlier for old rakes and After 4,00,000 km of running or 6 years whichever is earlier for new rakes.

1.3.2. **Running Maintenance:** When operation of Metro Railway started in Calcutta, all maintenance of rakes was carried out at Tollygunge (now Mahanayak Uttam Kumar) car shed. The shifting of maintenance activities from Tollygunge shed to Noapara car shed (located approximately 2 km away from DumDum Cantonment station of Eastern Railway towards West) was completed in January 2004 to augment the manpower resources and to stick to the inspection schedules as per periodicity. Scheduled Maintenance activities of Rolling Stock are now mainly carried out at Noapara Car Shed while daily and 3 day inspections are also carried out at Kavi Subhash Car Shed on round the clock basis. Mahanayak Uttam Kumar shed acts as a satellite shed where daily schedules of rakes and normal stabling of rakes are carried out. A connection from DumDum Metro station to Noapara exists for injection/withdrawal of rakes. Section-wise activities in Noapara car shed are as under.

Various sections like PPO, Shift, Control Gear, Electronics, Rotating Machine, Pneumatic, Door, Mechanical, Heavy repair, Ancillary Equipment carry out the overhauling activities of equipments as per the respective schedules.

1.3.3. **Facilities Available at Running Shed.**

i) **Shed No. 1 at NOA:**

Inspection pit	08 Nos.(Line 20/21/22/23/24/25/26/27)
Heavy Lifting Bay	01 No. (Line 17/18)
Stabling Lines	09 Nos.(Line 10/11/12/13/14/28/29/30/31)
Run Round Test Track	01 No.(Line 32)

Machinery and Plants:-

EOT Cranes (30/6 Ton)	02 nos.
EOT Hand operated Crane (15/3 Ton)	02 nos.
Static compressor	02 nos.
Static small compressor	06 nos.
Fork Lifter (Diesel Operated)	01 no.
Pit Type Wheel Lathe	01 no.
Battery Operated Locomotive	02 nos.
Accident Relief Van	01 no.
Test Benches	07 nos.
Road Vehicle	02 nos. (Hired)

ii) **Shed at KKVS:**

Inspection pit	04 nos.
Heavy Lifting Bay	Nil
Stabling & Washing Lines	06 nos
Test track	Nil

Machinery and Plants:

Battery Operated Locomotive	01 no.
Accident Relief Van	01 no

1.3.4. **POH:** POH Shop of Metro Railway is also located in the Noapara car depot complex. Initially during 1988, Shed No.2 was constructed and overhauling activities started with skeleton staff. However, since 1994, full-fledged POH activities have been started in Noapara complex and all

sheds meant for POH works have been gradually commissioned to achieve the desired outturn. Section-wise activities of POH shop are furnished below.

Various sections like PPO, Control Gear, Bogie, Rotating Machine, Pneumatic, Door, Superstructure, Wheel, stripping & equipping, RMPU, Testing & commissioning, Mill Wright carry out the overhauling activities of equipments as per the target of POH.

1.3.5. Facilities Available at POH Shop

i) Shed No. 3:

i.	EOT Crane (35/10)	04 Nos.
ii.	EOT Crane (15/3 T)	02Nos.
iii.	Pedestal Grinder	02 Nos.
iv.	Coil Spring Scragging M/c	01 No.
v.	Hydraulic Platform	01 No.
vi.	Bogie Static Load Testing M/C	01 No.
vii.	Air Compressors	01 Nos.
viii.	Glow-check Penetrant Type Crack Detector Device	04 Nos.
ix.	Magnetic Crack Detector Device	04 Nos.
x.	Coach Lifting Bay	02 Nos.
xi.	Bogie placement track	02 Nos.
xii.	Coach incoming outgoing track -	02 Nos.

ii) Shed No. 4:

i.	EOT Crane (3T)	02 Nos.
ii.	Punching Shearing Cropping & Notching M/C	01 No.
iii.	Commutator Turning M/C	01 No.
iv.	Mica Undercutting M/C	01 No.
v.	Air Compressor	03 Nos.
vi.	Baking Oven	02 Nos.
vii.	Heat Chamber for Drying varnish	01 No.
viii.	Induction Heater	01 No.
ix.	AC/DC Test Bench for MA & Motor Compressor	01 No.
x.	Test Console for Traction Motor	01 Nos.
xi.	Milli-volt Drop Tester	01 No.
xii.	Dusting Booth	01 No.
xiii.	Coach incoming outgoing track	02 Nos.

iii) Shed No. 5:

i.	EOT Crane (3T)	01 No.
ii.	Different Test Rig for Pneumatic Component	02 Nos.

iv) Shed No. 9:

i.	EOT Crane (3T)	01 No.
ii.	Wheel Press M/C	01 No.
iii.	Axle Turning Lathe	01 No.
iv.	Swivelling Jib Crane	01 No.

v.	Induction Heater	02 Nos.
vi.	Vertical Turret Lathe	02 No.
vii.	Track Line (For incoming & outgoing of Wheel Sets)	02 Nos.
viii.	CNC surface wheel lathe	01 No.
ix.	Bearing cleaning plant	01 No.
x.	Axlebox cleaning plant	01 No.
xi.	Bearing extractors	02 Nos.

v) **Shed No. 14:**

i.	Static Compressor for Air delivery to POH Shops	1 No.
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vi) **Shed No. 76:**

i.	EOT Crane (35/10T)	04 Nos.
ii.	AJTB Lathe	01 No.
iii.	500T Wheel Press	01 No.
iv.	Jamalpur Jack	05 Nos.

vii) **Shed No. 13:**

i.	Platform truck	05 Nos.
ii.	Fork lift	02 Nos.
iii.	Mig/Mag welding M/C	07 Nos.
iv.	3Phase Arc welding M/C	03 Nos.
v.	Portable welding M/C	01 No.
vi.	Gas cutting M/C	02 Nos.
vii.	Battery chargers& dischargers	03Nos.
viii.	RMPU testing panels	02 Nos.

Besides the above, there is one TXR Shed used for coach testing and commissioning works.