

## Electric Locomotive Class ALP-46A



NJ Transit, USA's third largest provider of public transportation has ordered a second batch of Bombardier Transportation's high power electric locomotives ALP-46A which will be used on the NJ Transit rail system as well as on the Amtrak's electrified network. The locomotives are part of the NY and NJ rail expansion program that addresses current and future ridership growth.

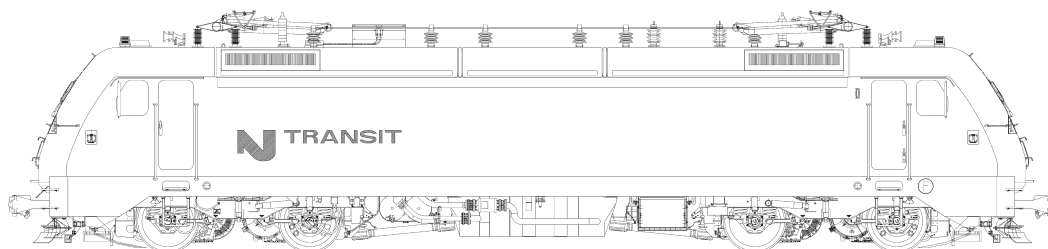
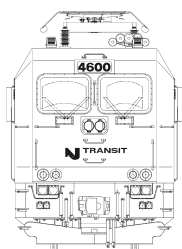
The first series of ALP-46 was based on the Class 101 locomotives that the German Railways have been operating successfully since 1996. Compared to the first series the ALP-46A's max speed has been increased from 100 to 125 mph (201 km/h).

The drive system is comprised of a transformer, two water-cooled IGBT traction converters and an air-cooled squirrel-cage induction motor with VERIDUR insulation for each axle. The design of the converters permits continuous regenerative braking. The converters operate completely independently of each other and are equipped with interchangeable power moduls. Each traction motor is controlled individually. This design provides high availability while keeping cost for maintenance and spare parts to a minimum.

The traction converters integrate an additional IGBT inverter to supply auxiliary power at 480V AC, 3 phase, 60 Hz. The frequency is controlled for optimization of energy consumption and noise. Another inverter feeds the train with three-phase 480V AC, 60 Hz. The battery and control system voltage is 74V DC.

# Electric Locomotive Class ALP-46A

New Jersey, USA



## General Data

Track gauge	1435 mm / 4ft 8½"
Clearance gauge	AMTRAK
Type of vehicle	Electric locomotive
Railway system operator	NJ Transit (NJT)
Vehicle designation	ALP-46A
Quantity	27
Years of commissioning	2009 – 2011

## Technical Data

System voltage	AC 25 kV/60 Hz, 12 kV/25 Hz
Train power supply	480V AC, 60 Hz, 3ph/1000kW
Wheelset arrangement	Bo'Bo'
Drive system	Fully suspended drive
Axle load	23 t / 50706 lbs
Number of traction motors	4
Power at wheel rim	5.6 MW / 7500 hp
Dynamic braking effort at wheel rim	150 kN / 34 000 lbs
Maximum speed	201 km/h / 125 mph

## Dimensions and Weights

Length over buffers	19 900 mm / 767.64"
Overall width	2 950 mm / 116.4"
Height over pantographs	4 489 mm / 173.73"
Distance between bogie centers	10 950 mm / 431.10"
Boogie wheel-base	2 650 mm / 104.33"
Wheel diameter new	1 118 mm / 44.02"
Wheel diameter worn	1 046 mm / 41.18"
Mass of locomotive	92 t / 202 822 lbs

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