ALP-46

New Jersey Transit

Release Version 1.0

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1 Background

1.1 Loco

During the 1990s, NJ TRANSIT had re-equipped its electric-locomotive-hauled trains with the ABB (Sweden)-constructed ALP44 and AMP44M, locomotives very similar to Amtrak's AEM-7. In the following decade, additional (and more powerful) electric locomotives were required by NJT and in 2001-2002, the commuter carrier acquired a fleet of 29 (NJT 4600-4628) ALP-46 electrics.

The ALP46 was based on the design of the Deutsche Bahn BR101 and was envisioned to be able to power trains that consisted of up to ten of NJ TRANSIT's then-new Bombardier multilevel Comet VI coaches (although the ALP46s would in fact regularly be employed also with NJ TRANSIT's existing single-level commuter stock).

After testing, the first of the ALP46 units formally entered NJ TRANSIT service in April 2002.
Based upon the success of the ALP46, NJ TRANSIT in 2009-2011 acquired 36 (NJT 4629-4664) ALP46A electric locomotives. Slightly heavier and more powerful, and with a top speed of 124 mph, the ALP46As represented a refinement of the previous model.
To some degree, the ALP46 and ALP46A locomotives are interchangeable on NJ TRANSIT assigned services, but with its higher tractive effort and top speed, the ALP46A tends to be assigned most frequently to heavy trains on the Amtrak-owned Northeast Corridor while the ALP46s handle assignments throughout the electrified sections of NJ TRANSIT. This fact makes the choice of the ALP46 (rather than the ALP46A) most appropriate for use on the North Jersey Coast Line route.
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1.2 Design & Specification

Builder	Bombardier/Adtranz
Locomotive Weight	198,400lbs (89,993kg)
Vehicle Length	64' (19.51m)
Vehicle Width	9'8" (2.95m)
Vehicle Power	7,108hp
Top Speed	99mph (160km/h)

1.3 Multi-Level Cab car

There are 643 of these coaches in service as of 2015 on NJ TRANSIT, Agence Metropolitaine de Transport (AMT) of Montreal rail lines, and MARC. NJT received 429 cars, including 62 cab cars, while AMT received 160 cars, including 26 cab cars. AMT's initial order in 2007 was for 60 coaches, with options for a further 100, since fully exercised. The MARC order consists of 39 trailers and 15 cab cars. The cars are currently being phased into service.

The coaches have a two-by-two seating arrangement and more knee and leg room than single level coaches. The seats are also bigger and it has 15-30% more seating than on single level coaches. The intermediate levels have 5 inward-facing flip-up seats on each side, for wheelchairs or bicycles. On cab cars, a large equipment locker behind the cab replaces one row of seats. There are large side doors at intermediate levels for high-platform loading, and end doors, except at the cab position on cab cars. The end doors of NJ TRANSIT coaches have stepwell traps, allowing these doors to be used for both high and low-platform loading. AMT coaches have one-piece end doors without traps, which can be used only for low-platform loading. There are also an automated announcement system and LED destination screens.

1.4 Design & Specification

Builder	Bombardier Transportation
Locomotive Weight	63.163 tonnes
Vehicle Length	85’ 00” (25.91m)
Vehicle Width	10’ 00” (3.05m)
Top Speed	100mph (161km/h)
Brake Types	Pneumatic Disc and Shoe

2 Rolling Stock

2.1 NJT ALP-46

2.2 Comet IV

2.3 Comet V Cab Car

2.4 Multi-Level Cab Car

2.5 Multi-Level Trailer

2.6 Multi-Level Special Trailer

3 Driving the NJT ALP-46

3.1 ALP46 Cab Controls

1	Combined Throttle/Brake	11	Wipers
2	Reverser	12	Sander
3	Auto Brake	13	Bell
4	Independent Brake	14	Handbrake
5	Horn	15	Pantograph
6	Headlights	16	Acknowledge
7	Ditch Lights	17	Speedometer
8	Cab Light	18	Main/EQ Reservoirs
9	Instrument Lights	19	Brake Cylinder/Brake Pipe
10	Fault Acknowledge		

3.2 Cab Controls Comet V Cab Car

1	Throttle/Dynamic Brake
2	Reverser
3	Train Brake
4	Horn
5	Headlight Switch
6	Crossing Lights
7	Wiper Switch
8	Sander
9	Emergency Brake
10	Acknowledge
11	Speedometer
12	Main/EQ Reservoirs
13	Brake Cylinder/Brake Pipe
14	Cab Light
15	Instrument Lights

3.3 Cab Controls Multi-Level Cab Car

1	Throttle/Dynamic Brake
2	Reverser
3	Train Brake
4	Horn
5	Headlight Switch
6	Crossing Lights
7	Wiper Switch
8	Sander
9	Emergency Brake
10	Acknowledge
11	Speedometer
12	Main/EQ Reservoirs
13	Brake Cylinder/Brake Pipe
14	Cab Light
15	Instrument Lights

3.4 Locomotive Keyboard Controls

Key Equivalent	Action
D / A	Decrease or Increase Power Handle.
S / W	Move Reverser Control Forward or Backward.
: / @	Decrease or Increase the Auto Brake (Train Brake).
[/]	Decrease or Increase the Independent Brake (Locomotive Brake).
< / >	Decrease or Increase the Dynamic Brake.

3.5 General Keyboard Controls

Key Equivalent	Action
T	**Load/Unload**. Press once to load/unload passengers or freight.
H	**Lights.** Repeatedly pressing will cycle through headlight states where appropriate.
V	**Windscreen Wipers**. Press once to switch on and again to switch off.
Z	**(Expert) Engine Stop/Start**. By default engines will already be running at the start of a scenario. Press this button to stop and then again to restart the engine.
Q	**(Expert) Alerter.** The Alerter is a system used on some trains to ensure that the driver has seen a signal. If the alert sounds (a black/yellow striped symbol is shown on the Driver's display), this must be acknowledged by pressing the Alerter button or the emergency brakes will be applied.
X	**(Expert) Sander**. Causes sand to be laid on the rails next to the wheels to assist with adhesion. Press once to apply sand and again to stop.
Space	**Horn.** Press to sound the horn.
B	**Bell.** Press once to sound the bell.
/	**Handbrake On/Off.** This icon is displayed in the Coupling view.
Shift + Ctrl + C	**Couple manually.**

3.6 NJTRANSIT Electronic Braking System

All driving units featured in this pack utilise the retrofitted NJTRANSIT braking system. The system uses a blended mix of dynamic and air braking to achieve smooth and effective braking. The brake notches are as follows;

Release: Releases the brake pressure built up in the brake pipe.

Hold/Lap: Holds the current brake pressure.

Service: Initial brake application.

Handle Off: Full service brake application.

Emergency: Empties the brake pipe and applies full dynamic brake as a last ditch attempt to stop the train in an emergency situation.

4 Scenarios

For driving tutorials, please visit the Academy from the main TS2015 menu screen*

4.1 [ALP-46] 1. Electric Avenue

Drive a stopping passenger service from Perth Amboy to Hoboken.

Duration: 40 Minutes
Difficulty: Easy

4.2 [ALP-46] 2. Changing the Fuse

Jump into the cab of this ALP-46, running as a light engine, on its way to collecting a disabled train, as it makes its final approach. You will then need to take it to Meadows Complex for repairs.

Duration: 40 Minutes
Difficulty: Easy

4.3 [ALP-46] 3. A Shock to the System

Join a stopping passenger service at Long Branch, stopping at all stations on the way to South Amboy. You will need to be alert as you may encounter poor weather and adverse signals.

Duration: 40 Minutes
Difficulty: Hard

4.4 [ALP-46] 4. Manhattan Bound: Part 1

You are the engineer of NJ Transit Train 3210, a 5:35 am weekday departure from Long Branch on the North Jersey Coast Line, bound for New York Penn Station in Manhattan. Train 3210 is equipped on this day with a consist of six Bombardier MultiLevels and an ALP-46 electric providing the power in push mode. You'll be serving a total of sixteen stations this morning, and as you go on duty, Train 3210 is in the holding yard at Long Branch. This is the first installment of a two-part scenario.

Duration: 50 Minutes
Difficulty: Medium

4.5 [ALP-46] 5. Manhattan Bound: Part 2

You are the engineer of NJ Transit Train 3210, a 5:35 am weekday departure from Long Branch on the North Jersey Coast Line, bound for New York Penn Station in Manhattan. Train 3210 is equipped on this day with a consist of six Bombardier MultiLevels and an ALP-46 electric providing the power in push mode. In this second installment of a two-part scenario, you have reached Woodridge and will soon be departing for the final leg of the journey to New York Penn Station.

Duration: 45 Minutes
Difficulty: Hard

5 Acknowledgements

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