

CHICAGO TRANSIT AUTHORITY  
RAIL BORNE SNOW REMOVAL VEHICLE

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**1.0 TECHNICAL DESCRIPTION**

**1.1 General Vehicle Information**

Vehicle Builder: Niigata Engineering Co., Ltd.  
Niigata, Japan

Cabs and Blowers: Two each, one per end arranged for  
double end operation

No. of Axles: Six (6) total - four (4) on locomotive  
and one (1) on each blower

Brake System: Spring applied, air released disc brake  
system

Maximum Towing or Pushing  
Speed: 55 mph

Traveling Speed: Up to 25 mph (with worn wheels) when  
not removing snow

Traveling Speed: Up to 20 mph when removing snow

Rotating Brooms: Six (6) total - two (2) on each side of  
the locomotive used each direction and  
two (2) on each blower for snow removal  
at third rail

Engine Accessories: Webasto automatic gas fired water  
heater  
Battery charger for vehicle storage  
period

Expected Vehicle Life: 30 years

**1.2 General Vehicle Data**

Engine: DDA 12V71N  
No. of Cylinders: 12  
Bore & Stroke: 4.25"x5"  
Output Horsepower: 456 BHP @ 2100 RPM  
Propulsion System: Daiken-Sundstrand, hydrostatic drive

## 1.2 General Vehicle Data (Continued)

Power Shift Transmission:	Niigata Converter
Model:	TDN-22-2004
Type:	Hydraulic clutch system
Tractive Effort:	17,500 lbs.
Total Length Over Snow Blowers and Couplers:	59' - 3/8"
Length over Snow Blowers (Couplers Retracted):	51' - 4-3/8"
Length of Vehicle without Snow Blowers:	27' - 7"
Width of Vehicle, Max.:	8' - 7-3/4"
Height from top of Running Rail, Maximum:	11' - 11-1/4"
Distance Center-to-Center of Trucks:	16' - 4-7/8"
Rigid Wheel Base:	6' - 2-3/4"
Wheel Diameter:	28"
Track Gage, Nominal:	4' - 8-1/2"
Curve Negotiation, Minimum Radius:	85' - 0"
Vehicle Weight:	89,500 lbs.
Fuel Tank Capacity:	185 gal.
Snow Clearing Equipment:	2-stage, auger (cutter) & blower (impeller)
Snow Removal Rate, Max.:	1,500 tons/hour
Snow Removal Depth, Continuous (Overrail):	2' - 0"
Snow Removal Depth, Drifts:	3' - 0"
Snow Removal Width:	8' - 7-15/16"
Snow Casting Distance, 135° Left or Right from Front Center of Blower:	100' - 0"
Maximum Blower Speed:	381 rpm
Maximum Auger Speed:	231 rpm
Snow Shear Strength:	0 to 750 lbs/ft <sup>2</sup>

## 2.0 **VEHICLE COMPONENTS DESCRIPTION:**

### 2.1 Prime Mover

The snow remover vehicle is equipped with a 2-cycle, water cooled Detroit Diesel Allison Series 71 engine, Type 12V71N (naturally aspirated) and equipped with N65 fuel injectors developing a full load