Next-Generation Propane Powered Vision

Powered by:

ROUSH CLEANTECH

Ford

BLUE BIRD

A heritage of looking ahead.
Agenda

- Your Blue Bird Propane Powered School Bus
- Product Overview
- Environmental Impact
- Safety
- Cost Savings
- Service/Maintenance
Your Blue Bird Propane Powered School Bus
Your Blue Bird Propane Powered School Bus

- Propane powered school buses represented almost 20% of Blue Bird’s TOTAL production in 2018
- Up to 40% quieter operation than diesel
- Greatly improved cold starting compared to diesel
- Quicker passenger compartment heating
- Significantly reduced fuel and maintenance cost
- Lowest emission bus on the market today
- Propane is domestically produced
Are propane school buses built for the cold?
Your Blue Bird Propane Powered School Bus

- Starts in -50°F temperature
  - Diesel begins to gel at 23°F
  - Diesel will no longer flow as a fluid at -9°F

- Liquid Injection

- Does not require a block heater (saves electricity!)

- Cabin heats MUCH quicker

- Brandon winter runs
  - In-city lift bus route
  - Ambient temp: Start -24°F End -11°F
  - Wind chill: Start -47°F End -34°F
  - Cabin temp: 69°F within 20mins
  - Propane - Temp dropped to 44°F, but recovered to 73°F within 8mins
  - Diesel - Temp dropped to 17°F and took over twice as long to recover
Your Blue Bird Propane Powered School Bus

15,000 Propane Powered Blue Bird Visions on the road today
Product Overview
Product Overview

Blue Bird Vision
(Type C)

Model Years
2020

Engine Size / Manufacturer
6.8L V10 (3V) Ford Engine with exclusive ROUSH CleanTech Propane Fuel System

Applications
169" / 189" / 217" / 238" / 252" / 273" / 280" wheelbase configurations
6-speed FORD automatic transmission

Fuel Tank Capacity
Short: 50 gallons (47 usable)
Mid-Ship: 70 gallons (67 usable)
Extended Range: 100 gallons (93 usable)

Technical Specifications
EPA and CARB approved
GVWR: 33,000 lbs
Up to 77 passengers
Product Overview

**Model Years**
- 2019

**Engine Size / Manufacturer**
- 6.8L V10 (2V) Ford Engine with exclusive ROUSH CleanTech Propane Fuel System

**Applications**
- 158" / 176" wheelbase configurations
- 5-speed automatic transmission

**Fuel Tank Capacity**
- Aft-Axle: 41 gallons

**Technical Specifications**
- EPA and CARB approved
- GVWR: 14,500 lbs
- Up to 30 passengers
The FORD Connection

- FORD 6.8L V10 engine
- Over 1.7 million produced
- Produced in Windsor ONT
- 3 Valves per cylinder
- Upgraded with premium valves, valve seats, and larger oil pump to meet Blue Bird’s needs

- FORD 6R140 HD Transmission
- Capable of up 900 ft-lbs torque
- Blue Bird 6.8L produces 457 ft-lbs
- Durability tested to 350,000 without issue
- Tested at 900 ft-lbs input to 250,000 miles
Environmental Impact

What is NOx?
Should I be concerned?
NOx is a general term for the nitrogen oxides that are most relevant for air pollution.

- These gases contribute to the formation of smog and acid rain.
- Can cause respiratory diseases such as emphysema and bronchitis.
- Can cause the formation of ozone, intensifying global warming.
- NOx are regulated under federal air quality standards because they are known to harm human health and the environment.
Environmental Impact

- Propane autogas results in an estimated 80% reduction in smog producing hydrocarbon emissions compared with diesel-fueled vehicles.

- Blue Bird Propane Vision school buses are certified to 0.02 g/bhp-hr, which is 90 percent cleaner than the EPA’s current emissions standard.

- Ten Blue Bird Vision Propane buses emit less NOx than one diesel school bus certified at the current standard.

- 100 Blue Bird Vision Propane buses emit less NOx than one diesel school bus manufactured before 2007.
Safety
Tank Crash Testing

- Followed CMVSS 301.1 protocol
- 4,000 lbs @ 40 MPH
- Angled side and rear impact
- 220 PSI tank pressure
- No leakage or no pressure drop in 30 minute test
Fuel System

- Fuel tank capacities of 50, 70 and 100 gallons

- Carbon steel shell
  - 20 times more puncture resistant than gasoline or diesel tanks
  - Twice the required thickness for ASME Certification

- Dual fuel pumps for added reliability

- 350 psi maximum fuel rail working pressure

- Tank burst pressure = 4 times working pressure
Cost Savings
Cost Per Mile Propane vs Diesel

- Some districts are reporting saving $.34 A MILE over the cost of diesel

- If you drive 12,000 miles per year and operate for 15 years...
  - One bus saves $4,080 in one year
  - One bus save $61,200 in it’s lifetime

- Fleets are locking in propane for as low as $1.10 a gallon

- This cost savings does not include possible federal rebate incentives
Service/Maintenance
Maintenance Savings Over Diesel

- Eliminates the need for costly diesel SCR systems
- Eliminates the need for a Turbocharger and Intercooler
- Eliminates EGR systems
- Eliminates DEF Fluid and components
- 7 Quarts crankcase oil vs 21-34 quarts in a diesel
Preventative Maintenance

- 7 Quart Oil Change at 5,000 miles
- Spark Plug change at 100,000 miles
- In-line fuel filter change at 50,000 miles
THANK YOU!

Questions