

News Release



FOR IMMEDIATE RELEASE
November 15, 2010

ATK-10-148
Amtrak Contact: Marc Magliari
312 880.5390
Oklahoma DOT Contact: Brenda Perry
405 521.6006
Texas DOT Contact: Karen Amacker
512 463.8700

AMTRAK BIODIESEL *HEARTLAND FLYER* NAMED ONE OF THE YEAR'S 50 BIGGEST AND COOLEST BREAKTHROUGHS TIME's 50 Best Inventions gives Amtrak top honor in transportation; Oklahoma-Texas train also showing big ridership gains

CHICAGO – Amtrak and the Oklahoma and Texas state transportation departments are honored to announce the test of a cleaner and renewable biodiesel fuel blend to power the daily Amtrak *Heartland Flyer* train has made TIME magazine's list of "The 50 Best Inventions of 2010."

With a [whimsical cartoon](#) pointing out the biodiesel blend includes beef byproduct, what TIME calls "Amtrak's Beef Powered Train" joins the ranks of Apple Inc.'s iPad and better 3-D glasses on the "50 Best" list. Operating daily between Oklahoma City and Fort Worth, the *Heartland Flyer* is the only one of TIME's ten transportation innovations to be publically available.

"This recognition from TIME magazine is an honor to our state partners and all of us at Amtrak who are working on this project, the nation's first test of biodiesel in an interstate passenger train," said Roy Deitchman, Amtrak Vice President, Environmental, Health and Safety. "Amtrak travel is already more energy efficient than most other forms of intercity transportation. If the test shows this use of a renewable fuel in our locomotive is successful, it's a home run for our passengers, for our partners and for the planet."

Amtrak received a \$274,000 grant from the Federal Railroad Administration to carry out the research project in partnership with the Oklahoma Department of Transportation (Okla. DOT) on the train operated by Amtrak with state support from both Oklahoma and Texas. The biodiesel blend is provided by a Texas-based vendor.

- more -

In previously conducted stationary locomotive engine testing, the biodiesel blend known as B20 (20% pure biofuel and 80% diesel) reduced hydrocarbons and carbon monoxide each by 10 percent, reduced particulates by 15 percent and sulfates by 20 percent. Detailed measurements will be taken on the locomotive at the end of 12 months so any impact of the biodiesel on valves and gaskets can be measured. Amtrak will collect locomotive exhaust emissions data for analysis in accordance with U.S. Environmental Protection Agency locomotive exhaust emissions federal test protocols.

“Quality of life issues are increasingly important. The *Heartland Flyer* has always provided high-quality service and being the first to test this program is another testimony in doing that by trying to improve the environment,” said Oklahoma Secretary of Transportation Gary Ridley. “We are truly proud that Oklahoma is a part of this innovative way to improve our quality of life.”

“Improving air quality and providing multimodal transportation alternatives are goals central to Texas transportation development efforts,” said Bill Glavin, Texas Department of Transportation (TxDOT) Rail Division Director. “Our partnership with Amtrak and Oklahoma on the *Heartland Flyer* helps us accomplish both goals - motorists have an additional option for travel between North Texas and Oklahoma City, which not only takes vehicles off the highway, but reduces harmful emissions compared to traditional diesel-fueled locomotives.”

Since April 2010, General Electric P32-8 locomotive 500 has carried an Amtrak decal indicating the use of B20 fuel and other special markings to make certain only the biodiesel fuel is used in 3,200-horsepower, 12-cylinder engine, through the conclusion of the test in April 2011. The trial has received support on fuel and engine component evaluation from Chevron Oronite. The engine manufacturer has provided input on warranty matters.



About the *Heartland Flyer*

The Amtrak *Heartland Flyer* was inaugurated June 14, 1999, with federal funds received by Okla. DOT that were designed to initiate service in areas without Amtrak trains. TxDOT joined the partnership with Oklahoma and Amtrak in 2006 with the support of the Heartland Flyer

Coalition, representing the communities along the 206-mile route. Ridership in the 12 months ending September 30 was 81,749, up 11 percent from the previous year. Growth is continuing with October 2010 ridership up by more than 17 percent compared to October 2009.

Amtrak operates the *Heartland Flyer* under state-funded contracts with Okla. DOT and TxDOT to provide daily service, with regularly scheduled stops in Oklahoma City, Norman, Purcell, Pauls Valley and Ardmore, Oklahoma and in Gainesville and Fort Worth, Texas. For additional information, visit www.heartlandflyer.com.

About the Oklahoma Department of Transportation

The mission of the Oklahoma Department of Transportation is to provide a safe, economical, and effective transportation network for the people, commerce and communities of Oklahoma. For more information, visit www.okladot.state.ok.us

About the Texas Department of Transportation

The Texas Department of Transportation is responsible for maintaining nearly 80,000 miles of road and for supporting aviation, rail and public transportation across the state. TxDOT and its approximately 12,000 employees strive to empower local leaders to solve local transportation problems, and to use new financial tools, including tolling and public-private partnerships, to reduce congestion and pave the way for future economic growth while enhancing safety, improving air quality and increasing the value of the state's transportation assets. Find out more at www.txdot.gov.

About Amtrak

As the nation's intercity passenger rail operator, Amtrak connects America in safer, greener and healthier ways. Last fiscal year (FY 2010), the railroad carried more than 28.7 million passengers, making it the best year in the company's history. With 21,000 route miles in 46 states, the District of Columbia and three Canadian provinces, Amtrak operates more than 300 trains each day—at speeds up to 150 mph (241 kph)—to more than 500 destinations. Amtrak also is the partner of choice for state-supported corridor services in 15 states and for several commuter rail agencies. Visit Amtrak.com or call 800-USA-RAIL for schedules, fares and more information.

###

Biodiesel Intercity Passenger Rail Revenue Service Trial

This is a research project supported by Amtrak and the Oklahoma Department of Transportation and funded by the Federal Railroad Administration (FRA)

Background

In 2005, the Oklahoma Department of Transportation (Okla. DOT) proposed to Amtrak the concept of using biodiesel blended fuel in the *Heartland Flyer* in lieu of #2 diesel. In previously conducted static locomotive engine testing, B20 (20% pure bio-fuel and 80% #2 diesel) has illustrated the following reduction in locomotive engine exhaust: hydrocarbons (HC) 10%, carbon monoxide (CO) 10%, particulates 15%, sulfates 20%. The biodiesel fuel used in this project is a blend based on a by-product of beef processing.

Biodiesel requires little to no engine modifications for utilization. However, two new engine assemblies were placed into P32-8 Locomotive #500 (the test engine) and detailed measurements taken so at the end of 12 months, any impact of biodiesel on valves and gaskets can be measured.

Amtrak will operate the *Heartland Flyer* exclusively with B20 for an approximate period of 12 months. The fuel port has a stencil indicating biodiesel should be used. The locomotive will continue to be fueled in Fort Worth by our existing fuel vendor using a B20 diesel fuel.

Objectives and Work Elements

The primary objective of the test program will be to evaluate the feasibility and effectiveness of utilizing biodiesel as an alternative fuel for passenger locomotives. The test program will focus on several elements:

Task 1: Revenue service trial of B20

Amtrak will operate the *Heartland Flyer* in normal passenger service while utilizing biodiesel blended (B20) fuel. Amtrak will measure and record the B20 fuel consumption of the engine, on a daily basis.

Task 2: Power Assembly Inspection, Analysis

Task 2 was completed prior to the commencement of revenue service testing. Amtrak will perform, at a minimum, pre- and post-revenue service test inspection and analysis of two power assemblies from the locomotive engine. The analyses will identify any and all adverse effects of the B20 fuel on engine components that are expected to be directly or indirectly impacted by the utilization of B20 fuel.

Task 3: Engine Exhaust Emissions Analysis

Following the 12-month revenue service test period, Amtrak will collect locomotive exhaust emissions data. Exhaust emissions from the locomotive will be analyzed in accordance with US EPA locomotive exhaust emissions federal test protocol. GE Transportation or another contract provider with equivalent capabilities will conduct the engine exhaust emissions testing and provide documentation of the results to be included in the final report.

Task 4: Miscellaneous Maintenance/Inspection/Test

Amtrak will perform analysis of the engine oil every 10 days for degradation and/or dilution. Amtrak will have the pure biodiesel, B100 fuel samples analyzed to determine that the fuel meets ASTM D6751 standards. Amtrak will subject the diesel fuel to be blended with the pure biodiesel (B100) to be tested monthly to ensure it meets ASTM D975 specifications and similarly the B20 blend will be tested monthly to determine conformance with ASTM D7467 specifications.

Budget Estimates

The Federal funding contribution for the implementation is \$274,000, from FRA Research and Development.

Assemblies Analysis

Start of Test

Two power assemblies were pre-inspected and initial parts measurements performed at the Amtrak Chicago Maintenance facility, including pistons and piston rings and connecting rod bearings

General engine condition will be evaluated to include engine cleanliness (rocker box and crankcase), visual inspection of locomotive, and review of operational history (oil consumption, fuel consumption, duty cycle, and other operational issues that can affect testing)

End of Test

The two power assemblies that were installed at the beginning of the test will be removed at the Amtrak Chicago Maintenance Facility and inspected. Pistons will be evaluated for wear and rated for deposit levels on the lands and in the grooves. Connecting rod bearings will be inspected for wear and photographed.

General engine condition will be evaluated. Engine cleanliness will be evaluated and rated for sludge. Review of operational history (oil consumption, fuel consumption, duty cycle, other operational issues that can affect testing).

Biodiesel Fuel Supply

The fuel supplier is Direct Fuels of Euless, Texas, a BQ9000 registered producer. The quality program is designed to promote the commercial success and public acceptance of Biodiesel and to help assure Biodiesel fuel is produced to and maintained at the industry standard, ASTM D6751.

Storage and handling:

- All material goes through filters at the time of production and then again as the material is loaded out onto trucks.
- All storage units are heated and mechanically mixed.
- If Biodiesel remains in a tank for more than a 30 day period, the lot is retested according to BQ9000 parameters for quality and stability to ensure quality.
- All trucks are inspected for cleanliness before loading with Biodiesel.

- All trucks are sealed after loading with Biodiesel.
- Certificates of analysis for the material loaded are distributed each time material is loaded out.

Quality control testing:

- All batches are tested to all critical parameters as defined in the BQ9000 program. We also test for water content, viscosity and carbon residue on every batch.
- Monthly, at least one batch is tested for metals content and sulfated ash.
- Semiannual testing of cetane and distillation parameters is performed.
- The onsite lab has testing capabilities for all ASTM Biodiesel standards except cetane and distillation.
- The Direct Fuels laboratory participates in the Biodiesel Round Robin crosscheck program organized by ASTM.

The feedstock comes exclusively from Texas.

Biodiesel Test Locomotive

Amtrak locomotive #500 is a General Electric P32-8 locomotive delivered to Amtrak in 1991 from the GE plant in Erie, Pa. Amtrak owns 18 of these locomotives used in mainline and switching service.

Amtrak Energy Efficiency

Traveling by rail contributes less per passenger mile to greenhouse gas emissions than either cars or airplanes. According to U.S. Department of Energy data, Amtrak is almost 20 percent more efficient than domestic airline travel and 28 percent more efficient than auto travel on a per-passenger-mile basis.



* BTU stands for British Thermal Unit, a standard unit of energy. Figures listed are from 2007 and refer to BTUs used per passenger mile.