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# AMERICAN TUGBOAT REVIEW 2012

ATR'S TOP  
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TUGS

**Biggest  
ATBs ever**

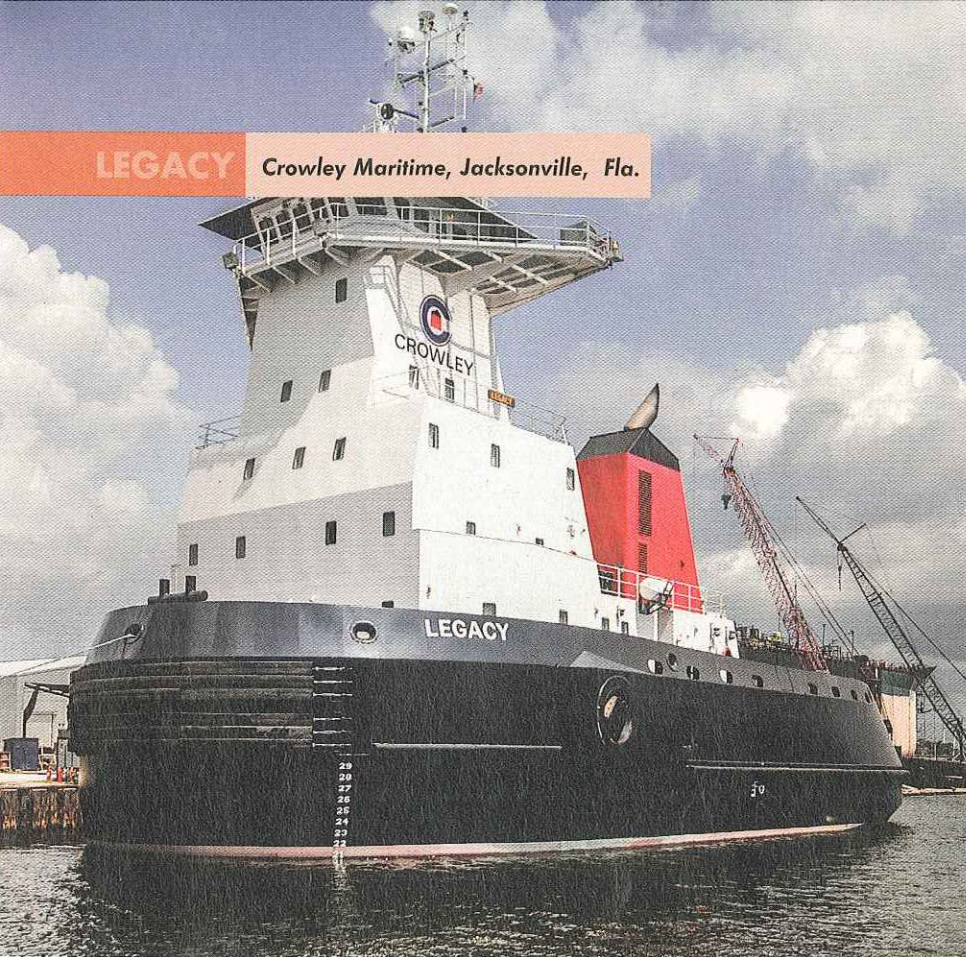
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**ROUNDUPS**  **Tugs  
Towboats**





# ATB Legacy strives to be the safest and greenest as well as the biggest

Story and photos by Brian Gauvin

The first of Crowley Maritime's three 750-class ATBs is working in the Gulf of Mexico on long-term charter to Marathon Petroleum. By all accounts, the

148-foot tug *Legacy* and its 600-foot barge 750-1 are living up to high expectations.

"We're thrilled with them," said Rob Grune, vice president of petroleum services for Crowley. "The customer is very pleased. It's a new design, and it's a big vessel, almost twice the size of the 650 series."

*Legacy* was built at Dakota Creek Industries in Anacortes, Wash., and 750-1 was built at VT Halter Marine in Pascagoula, Miss. The two were coupled last fall and went into service in January. The second tug, *Legend*, and its barge, 750-2, are expected to be working in the Gulf

**Top, Legacy, a 148-foot tug, was built by Dakota Creek Industries.**

**Left, Chief Engineer Steve Woodard relays information to other officers during the engaging of the connection system.**



this summer. The third tug, *Liberty*, and its barge, 750-3, are expected to join the Crowley ATB fleet next spring.

*Legacy* and 750-1 are carrying petroleum products, primarily gasoline and diesel, from the Marathon dock at Garyville, La., down the Mississippi River and across the Gulf of Mexico to Tampa, or when called upon, to Port Everglades on the Atlantic.

The 16,092-hp tug and the 330,000-barrel barge, which is 674 feet long with *Legacy* in the notch, represent the largest ATB yet built. "The largest product tankers we see out there today are around 330,000 barrels, and that's the size of the 750 series," said Grune.

As for speed, the ATB is rated at 15

## LEGACY

## SPECIFICATIONS

**Owner/Operator:** Crowley Maritime  
**Builder:** Dakota Creek Industries  
**Designer:** Naviform of Vancouver, B.C.  
**Dimension:** 148 x 60 x 30  
**Mission:** Integrated towing service - towing vessel  
**Crew** 14

### PROPULSION

- ◆ Engines: (2) Wärtsilä 12V-32, 12 cyl. 16,092 hp at 750 rpm
- ◆ Vessel speed: 15 knots
- ◆ Propellers: 4-blade, bronze CP propellers with oversized rudders
- ◆ Gearbox: Wärtsilä SCV 85-P51 reduction 4.41:1
- ◆ Auxiliary generators: (2) Marelli Motori MJB4 400 MA4 shaft generators (ships power running)
- ◆ Cummins QSK-19 DM harbor generator
- ◆ Cummins 6CTA 8.3 (D) M emergency generator

- ◆ Stern anchor: 2,000-lb Danforth

### COATINGS

- ◆ Hull paint: PPG
- ◆ Special-purpose paint: high performance, self polishing, anti-fouling

### NAVIGATION GEAR

- ◆ Radar: Furuno 2127, Furuno 2117
- ◆ Electronic chart display: Transas CS 4
- ◆ Compass: Furuno satellite compass, (2) magnetic
- ◆ AIS: Furuno
- ◆ E-nav software: Transas
- ◆ Autopilot: Simrad AP50

### DECK EQUIPMENT

- ◆ Deck fittings: 150-ton H bitt on the stern & smaller H bitt on the bow
- ◆ Cordage: Samson Rope
- ◆ Capstan: Coastal Marine Equipment: stern 100 ton, bow 50 ton
- ◆ Coupler system: Intercon model 64
- ◆ Fendering: Schuyler Rubber
- ◆ Steering: Rolls-Royce RV 650-3 Rotary Vane Rudder Activator

### COMMUNICATIONS

- ◆ Radio: (3) SEA 157 VHF
- ◆ Furuno FS 1570
- ◆ Satellite connection: Iridium

### CAPACITIES

- ◆ Fuel: 5,780.2 bbl HFO
- ◆ 2,082.5 bbl diesel
- ◆ Water: 26,090 gallons

### ADDITIONAL INFORMATION

- ◆ +A1, Towing Vessel, +AMS, +ACCU, R2



knots, loaded. During a voyage to Port Everglades with the author aboard, *Legacy* made 14.5 knots against a stiff wind in the Gulf and up to 16.5 knots with the assistance of the Gulf Stream.

Anticipating ever-stiffer environmental



*Above and left, the 330,000-bbl barge 750-1 at VT Halter Marine, in Pascagoula, Miss. The ship-like barge has a flared bow rising from a bulbous nose.*



regulations, Crowley is one of the first marine operating companies to obtain an ABS redundant engine room rating of R2. Each of the tugs has two completely

separate engine rooms, called engine pods, one port and one starboard. Each pod contains an 8,046-hp Wärtsilä 12V-32 main engine, a Wärtsilä 4.41:1 reduction

gear and a shaft culminating at a Wärtsilä controllable-pitch propeller. A second shaft turned by a PTO drives a 684-kW Marelli Motori shaft generator.

The dual-fuel main engines, on the 750 tugs burn heavy fuel oil (HFO) primarily, switching to diesel (MGO) wherever emission rules dictate the use of low-sulfur fuel.

"The engines are more expensive than the MGO engines, but they've performed very well. The capital cost is higher, but it gives us a lower cost of operation expense because HFO is cheaper," said Grune.

He pointed out that as air emissions regulations get tighter, HFO may become less available. "It is going to get harder for us to acquire heavy fuel. So as those requirements and regulations come into play, we may have to switch to MGO in those engines because we're not going to be able to find HFO. We'll have to see how that plays out."

*Legacy* has a redundant Rolls-Royce

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RV 650-3 steering system and 16.5-foot oversized Rolls-Royce CB 3700 rudders.

"The rudders work really well on this boat and on the 650s," said Capt. Jaime Colon, of the Associated Federal Pilots and Docking Masters of Louisiana, while guiding the 750 down the Mississippi River. "It's unfair how well they handle."

While underway, the vessel's electrical requirements are supplied by the shaft generators. In port, a Cummins QSK-19 DM generator will supply 563 kW of hotel power. There is also a Cummins 6CTA 180-kW emergency genset aboard.

A waste heat conveyor gathers engine heat and uses it to heat the interior while the vessel is underway. "Instead of firing the boiler all the time, we use the waste heat, which is normal on a ship but not on a tug," said First Engineer Butch Kates.

Intercontinental Engineering and Manufacturing of Kansas City, Mo., designed and built the Intercon model 64 coupler for the 750 series ATBs. The ram diameter is 64 inches compared with the 50-inch diameter ram on the company's 550 and 650 series ATBs.

As befits the 600-foot length and 34-foot draft, the hull of a 750 barge is more ship-like than barge, with a flared bow rising from a bulbous nose. All of the power requirements on 750-1 are provided by two Cummins QSK-60 generators producing 1,824 kW. In addition there is a Northern Lights/Stamford 50-kW harbor genset.

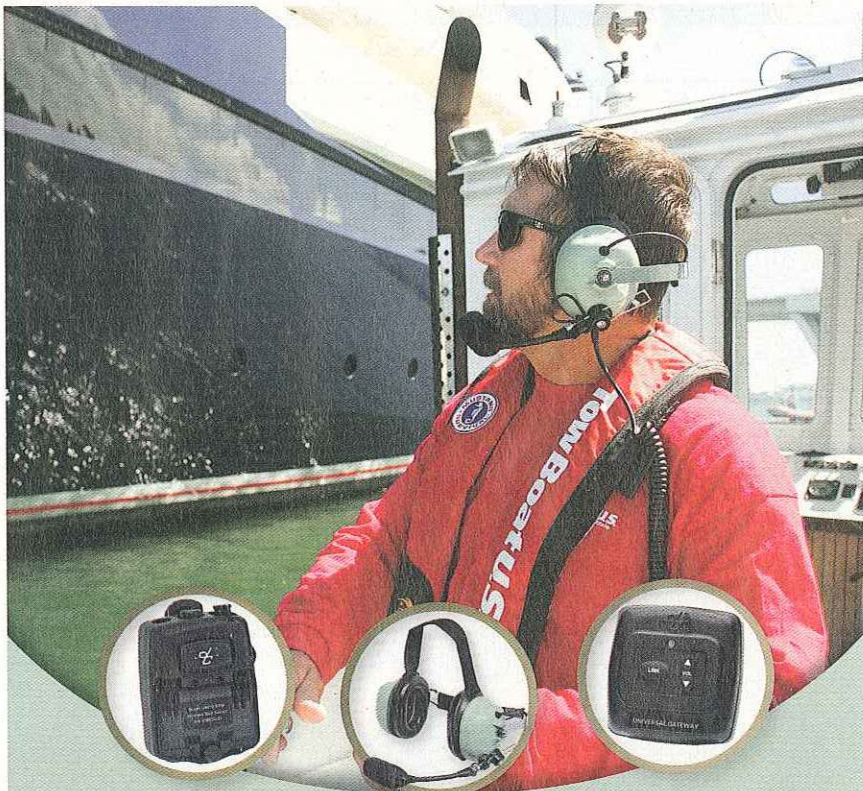
The barge has 14 cargo tanks equipped

with a remotely operated radar gauging system that measures the cargo levels that are then monitored in the cargo control room and at local monitors. There is also a dual-mode inert gas vapor collection system that covers the product in the tank to make the tank atmosphere too lean for combustion. "We've been pumping 30,000 barrels an hour and the system has no problem keeping up with it," said Chief Mate Andrew Stewart.

The cargo tank stripping system in

each tank consists of a suction on the sump and one on the top line, which strips 100 percent of the cargo. "You don't have to wash the tanks in between stripping them and then purging them," said Stewart. "It's one of my favorite things about the barge because of the savings in time and manpower. We are on short runs, so we don't have much time between ports to get ready."

750-1 is one of the first barges with an ODME (oily discharge monitoring



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### 750-1

**Owner/Operator:** Crowley Maritime

**Builder:** VT Halter Marine

**Dimensions:** 600 x 105

**Mission:** 330,000-bbl tank barge

SPECIFICATIONS

#### PROPULSION

- ♦ Auxiliary generators: (2) Cummins QSK-60 at 1,824 kW each
- ♦ Harbor genset: Northern Lights/Stamford
- ♦ Coupler system: Intercon model 64
- ♦ Cranes: (2) Hydra-Pro 10-ton hose handling cranes

#### CAPACITIES

- ♦ Product: 330,000 bbls in 14 cargo tanks
- ♦ (14) GE electric motor driven cargo pumps - 3,786 bph
- ♦ Max. discharge rate of 30,000 bph

#### DECK EQUIPMENT

- ♦ Winches: (7) Intercon DD137, 60-hp electric mooring winches with warping heads
- ♦ Corgage: Samson Turbo-75 - braid on braid mooring lines



equipment) that automatically shuts off water being discharged over the side if the oil content exceeds MARPOL limits.

The barge has seven Intercon DD137 mooring winches with warping heads wrapped with Samson Turbo-75 high-modulus polyethylene (HMPE) braid on braid lines. The rope is one-sixth the weight of comparable strength wire, and more flexible, hence easier on the crew.

The deck buttons or fairlead rollers that guide the Samson mooring lines on

the barge are made of a fabric reinforced composite material called Orkot Marine TLMM bearings manufactured by Trelleborg Sealing Solutions.

"The vision when we originally looked at these vessels was of an innovative, new design for moving petroleum products in the U.S.," said Grune. "We didn't invent the ATB design, but we sure perfected it here for U.S. use. There was a lot of speculation from our customers when we started

building these back in the early 2000s whether they would be able to operate safely on the U.S. West Coast."

With extensive tank testing and the success of the 550s, the company demonstrated that it could operate what were then considered large ATBs on the West Coast. The customers became convinced and Crowley's vision became a commitment to developing an ATB technology niche within the U.S. flag petroleum transportation business.

All of Crowley's ATBs are built under the ABS SafeHull program for environmental protection. The company participates in the ABS Green Passport program which requires it to document the materials used in the construction and operation of the vessel to facilitate the proper disposal and recycling of them at the end of the vessel's life.

New ballast water exchange regulations are pending and the subject is at the center of Crowley's thinking. "We're looking at new technology surrounding that to determine what is the best way for us to meet those regulations," said Grune. "It's not going to be a cheap undertaking by any means. But it's an issue that the whole world is dealing with, not just Crowley. Environmental issues are issues that are probably never going to end. We're always going to be looking at improving upon those. And we're right there with them. We're advocates of it. It's a good thing for our business; it's a good thing for how our business is perceived."

If you don't know how to spell the word safety, you will from the moment you board *Legacy*. The welcome mat reads, "Safety Begins Here," and the word is visible everywhere. If you check under your plate, you will find a safety message on the placemat that reads: "Goals: No harm to people; No accidents; No damage to the environment."

"Crowley wants us to do it right and safely," said Steve Woodard, the relief chief engineer on *Legacy*. Both Woodard and Kates are slated to transfer to *Legend* when that tug leaves Dakota Creek. "They are very safety oriented and that's a good thing to be in this day and age," Woodard said. "They want us to do whatever we can do to have a safe ship."

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