



DEFENSE ANALYSIS

Drop-In Replacements

France extends airdrop capabilities with purpose-built vehicles

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FRENCH DEFENSE MINISTRY

The French army is credited with developing the first viable technique for airdropping heavy vehicles into battle zones. The initial use of the capability was for delivering engineering vehicles at Dien Bien Phu (in what is now Vietnam) 63 years ago.

Continuing improvements to French airdrop capabilities include equipment design. The latest development involves a pair of vehicles—a new bulldozer and an all-terrain vehicle (ATV) for which competitive bids were announced in March.

Since the war in what was then Indochina, the French army's only airborne engineer unit, the 17th Parachute Engineer Regiment (17e RGP), has continued to use old bulldozers on airdrops, most recently in Timbuktu and Tessalit in Mali, where men and vehicles were parachuted in to rebuild and repair landing strips that were thousands of miles from the nearest usable airport.

Paratroopers install armor plate on the TNA cabin.

However, it became clear that the bulldozers were well past their prime. A fast-track program was launched to replace them. The result is a tractor-leveler, known by the French acronym TNA. The first of six vehicles was delivered to the 17e RGP last December, and five others will be delivered before the end of the year.

Manufactured by UNAC, a small company based in southern France that builds utility vehicles for the army, the TNA was developed in three years in a collaborative effort between UNAC, the regiment, and STAT, the army's technical service responsible for the final evaluation of equipment, which also has input into the development of materiel.

The compact 6.5-metric-ton (7.1-ton) bulldozer is 5.47 meters (17.9 ft.) long, 2.2 meters wide and 2.5 meters high. Equipped with a Caterpillar C4.4 100-hp engine that gives it an above-average weight-to-power ratio, it trundles along at a top speed of 11 kph (6.8 mph). The chassis is made of high-elasticity steel and high-resistance aluminium alloy to obtain a weight-to-resistance ratio that can withstand a 50g landing force.

The cab section, developed by French company Sarrazin, can be lowered to optimize its envelope for the airdrop and equipped within an hour of landing with armor that meets

the Stanag 4569 Level 2 standard, as well as anti-mine armor standards. The armor, when removed, is transportable in the machine's integrated armor storage compartment.

The TNA has a 2.5-meter-wide blade that digs 35 cm (13.7 in.) deep, a backhoe that penetrates 3 meters, as well as dumper, grading and ditching buckets and a rock-breaker tool. All this equipment means that the TNA can not only prepare and improve landing fields but remove runway obstacles, undertake basic landscaping of access routes, and build slopes and mounds to protect friendly forces or create shooting and surveillance locations.

The army requirement was that the vehicle be able to be transported and air-dropped by the Airbus A400M transport, as well as Lockheed Martin C-130s and Transall C-160s, and compact enough for carriage on NATO heavy helicopters such as the Boeing CH-47 or Sikorsky CH-53.

The TNA landed safely in its first airdrop test.

The TNA, which weighs 7.8 metric tons with protective wrappings, was first airdropped on July 2, 2015, from an altitude of 400 meters. It descended at a speed of 67 meters/sec. (150 mph). Extracted from the aircraft with a parachute that was then discarded, the TNA landed relatively gracefully, thanks to its deployment of five additional parachutes.

The second airdrop-capable vehicle France is developing is the Fardier, a lightweight ATV that is designed to transport the bags and reserves of food, water and ammunition that special forces personnel carry. These loads can weigh upward of 50 kg (110 lb.) per man. Gen. Charles Beaudouin, director of STAT, says the requirements document for the



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vehicle is complete. The program has just been launched—the initial call for companies interested in developing the vehicle closed on March 15.

Fardier will weigh 400-600 kg, and its airdrop trailer will be 200-400 kg. The vehicle will be equipped with communications systems and brackets for such equipment as infrared and visible-spectrum spotlights, an advanced GPS receiver, flashlights and fire extinguishers. It will give special forces the option to land much farther away from a target than before by allowing them to drive to it rather than walk.

The manufacturer chosen to build 300 Fardiens and 200 trailers will also have to develop and supply all tools, spares and documents, provide training and offer after-sales service for 10 years.

Once the contract is awarded, the winner will have 13 years in which to deliver all the vehicles. Beaudouin, however, wants delivery before 2020. ☉

