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# Construction of Demining Machines in the Kurdistan Region

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## *Construction of demining machines in the Kurdistan region*

As I promised in the 6<sup>th</sup> issue of the Technology Newsletter I would return with another article on the progress in the construction of demining machines in the Kurdistan region in support of the Iraqi Kurdistan Mine Action Agency (IKMAA). It has been close to a year since then and a lot has happened. More than half of the machines under the contract have been delivered to IKMAA. Before departing Jordan in January 2008 I visited IKMAA and Zozik Company in Erbil during early December 2007 to follow up on the progress of the construction of the machines. A few days later the first batch of machines were delivered to IKMAA and was ready for operational use. Below is a picture of one of the front end loaders before and after reconstruction by the contractor.



Before. Front end loader before being fitted with armored plating and glass. The machine has already been fitted with a sifter. May 2007.



After. The machine has been fitted with armored plates and glass and has just been handed over and delivered to IKMAA. December 2007.

The modifications to the above front end loader included the fitting of 7 mm armored plates to cover and protect the vulnerable parts consisting of the front axle, the discs brakes, hydraulic pipes, the diesel tank, the steering unit, hydraulic cylinders, the engine and the cabin. The cabin was also fitted with 40 mm armored glass in addition to the armored plates. As can be seen in the pictures above, a sifter was fitted to the front end loaders. All demining machines were delivered on time and in accordance with the contract, accompanied by enough spare parts for one year, workshop containers hydraulic fluids and diesel tankers. A few advantages of locally constructing demining machines are that the cost for delivery is minimum, service from the manufacturer is always conveniently close for service purposes and repair and monitoring of the progress of the construction and modifications can be done on a daily basis. The total cost is also minimum since indigenous labor is used and machines and parts can be purchased locally.

Compared with the initial specifications provided to the contractor very few changes were done to the design of the machines during the course of the contract. For the two front end loaders that were armored and delivered during early December 2007 the VOLVO L180C, 1998 model, was used as a base for the reconstruction of the front end loaders and the Hitachi 200X 2001 model was used for the excavators.

The last delivery of machines to IKMAA under the contract will be during May 2008. The contract is then completed.

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