

Ultralight Welder Enters Shipyard Evaluation Phase

Welding in the close quarters common to submarine construction is a difficult and costly undertaking, especially when the welding equipment weighs several hundred pounds. With existing equipment, hours or even days of set-up and take-down time are often necessary for a simple weld that might take just minutes to complete. To address this issue, General Dynamics Electric Boat and the Lincoln Electric Company have teamed to develop a lightweight machine capable of pulse, gas metal arc welding (GMAW-P). The new system uses ground-breaking technology to reduce the weight to a mere 45 pounds, enabling a single worker to move the equipment from job to job with the ease of handling a suitcase.



The Lincoln Electric EB-200MP ultralight welder.

who will use the machines in actual shipyard conditions to thoroughly test their welding performance, durability and suitability for that very demanding environment. Two of the five units will be sent to EB's Quonset Point facility for use in their pipe shop to weld attachments and hangers; the other three units will be tested in various production settings in the Groton yard.

According to Mr. Neil Fichtelberg, EB's Primary Investigator for the project, they "expect a very good reception by the shipyard and expect welders to be fighting to get their hands on the Ultralight."

In addition to drastically reducing equipment handling time, the new machine significantly improves the working environment. Its GMAW-P process produces less debris and fumes when compared to "stick" welding, and because it operates at a lower voltage, the potential for electrical shock is greatly reduced.

About CNST

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The project team recently completed a very successful prototype phase in which five machines went through rigorous testing that included evaluation of welding characteristics, reliability, thermal cycling and electromagnetic compatibility. Based on experience gained with the prototype models, Lincoln implemented minor design changes and produced ten near-production machines they refer to as "Alpha" models. Lincoln is currently putting five of the Alpha units through additional operational, mechanical and environmental testing and has provided the remaining five units to Electric Boat (EB) where they will be tested and evaluated in a shipyard production environment.

The five units at EB have completed initial test and check-out procedures, which have confirmed that the Alpha units have welding characteristics that are identical to those of the prototype. To support future testing, welding supervisors from EB's Groton and Quonset

Point facilities have been trained on setup and use of the equipment.

The supervisors will train production welders



The prototype EB-200MP during testing at Electric Boat's welding laboratory.