

# Immersion Tank Upgrade

*Cost Effective Rejuvenation of Production Equipment*

## Application Background

A production environment immersion tank is exposed to normal wear and tear over its many years of operation. At the same time, NDE and computer technology continue to progress at a rapid rate. The net result is that components and capabilities of middle aged immersion tanks become obsolete or impossible to maintain. Faced with the costly decision of buying a new immersion tank, many owners are instead opting for a more cost effective solution: upgrading.

In one such application, Westinghouse NDE Products was contracted to identify areas of an immersion tank that would benefit from upgrades. The customer then decided which items to proceed with, and also took on a portion of the upgrade work, where possible, to reduce external costs. A further cost saving was accomplished by shipping the tank to Westinghouse NDE Products' Windsor, CT, facility for upgrading, refurbishment, and factory testing.



## Upgrade Project Details

The immersion tank to be upgraded was 11' x 6' x 5' (without the Z-mast installed) and weighed 2000 pounds. Its scanning strokes were 4', 3', and 3', for the X, Y, and Z axes, respectively.

The following items were replaced, added or conducted by Westinghouse NDE Products:

- X and Y mechanical drives (linear bearings, brakes, ballscrews, belts, pulleys, DC servo motors and encoders)
- Z and W mechanical drives (turntable, gearhead, brakes, servo motors and encoders)
- Cable management system
- 4-axis servo controller
- Once per revolution sensor on turntable axis
- AMDATA IntraSpect? I/UX 2<sup>i</sup> UT Imaging System
- 4-axis pendant with E-stop
- Rewiring of motors, encoders and limit switches
- Tuning the servo control for optimum performance
- System integration and NDE performance test
- System manuals and acceptance test procedures
- Factory and site acceptance testing
- Operator training
- Refurbishment of rails and protective devices
- Custom controls software

## Results

The entire project, including custom software, was completed within three months: from contract award to completion of site acceptance testing.

The upgraded equipment included adding UT imaging capabilities, and passed acceptance testing with flying colors. The accuracy requirement of 0.005"/ft was passed with no measurable variation (0.000") over 30" strokes.

## Conclusion

Owners of aging immersion tanks have a cost effective alternative to replacement: refurbishing and upgrading. This allows the mechanical structure, tank and other durable portions of the system to be reused, thereby avoiding their replacement costs.

Westinghouse NDE Products can, in turn, address only the portions of the system which require replacement or refurbishment. Whether it be mechanical, electrical, software, NDE, or project management, Westinghouse NDE Products has the resources to provide solutions to all your immersion tank needs.



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# IMMERSION TANK UPGRADES



Upgraded Immersion Tank

## FEATURES

AMDATA's immersion tank upgrade is customized to your individual needs. It can include any of the following aspects:

- A base line inspection, testing and summary report to quantify the current performance of your immersion tank and recommend areas for upgrading.
- Tune-up or replacement of drive train hardware, motors and encoders.
- Replacement of electronics and control software.
- Replacement of wiring and backfitting an imaging system.
- A post upgrade test and summary report to quantify the improved performance of the immersion tank.

## BENEFITS

- Improved mechanical performance.
- Improved accuracy and speeds.
- Addition of UT imaging for improved ultrasonic performance, data acquisition, analysis, retention and reporting purposes\*.
- Low cost means of adding current technology.
- Improved reliability, minimal down time.
- Improved spare parts accessibility and cost.
- Teaming with a stable supplier.

\* A separate data sheet is available which describes the AMDATA IntraSpect? series of ultrasonic imaging systems. Ask your AMDATA representative for a copy.

## AMDATA IntraSpect Technology

*Owners of immersion tanks now have a cost effective means to incorporate AMDATA IntraSpect technology into existing equipment regardless of original manufacturer.*

*Upgrades can be tailored to your technical needs and budget. AMDATA can provide mechanical hardware, electronic controls, and/or NDE imaging equipment to meet your specific requirements. Upgrading allows a customer to retain portions of existing equipment that continue to provide acceptable performance.*

*Best of all, upgrading allows old equipment to be "supercharged" with the benefits of an AMDATA IntraSpect? ultrasonic imaging system. Our PC based systems allow multi-tasking so that an operator can analyze existing files and print out images while inspecting new parts! In this manner, your operators will have the technology at their finger tips to significantly improve the productivity of your operations.*

*Lastly, it is important to note that AMDATA has been a supplier of NDE equipment for 20 years and is backed by Westinghouse. Our long history of stability won't leave you high and dry.*

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