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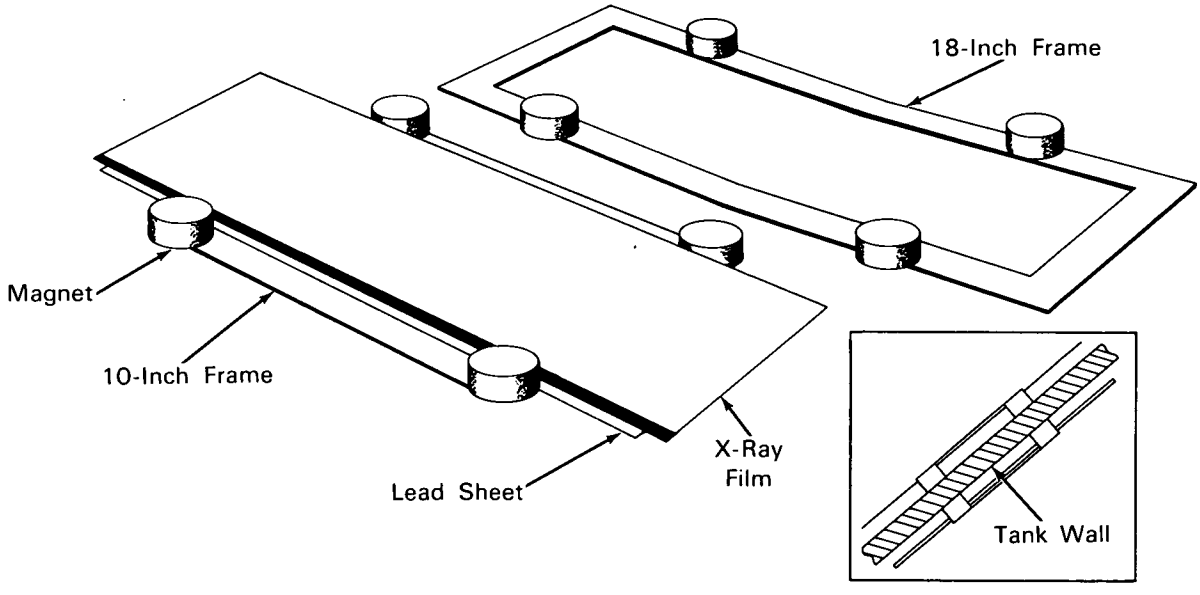
Brief 65-10110

NASA TECH BRIEF

Magnets Position X-Ray Film for Weld Inspection



The problem: Inspections of welds by X-ray requires that the X-ray film be placed against the weld at the point to be inspected. In the case of large aluminum structures such as those used for space vehicle fuel and oxidizer tanks, placement of the film is difficult and frequently requires a man to enter the tank and tape the film in place.

The solution: A film-positioning device that uses magnets to hold the film in the desired location.

How it's done: Two rectangular aluminum frames, one 6 by 18 inches and the other 6 by 10 inches are used. Conventional magnets (such as blackboard magnets) are attached to the corners of the smaller frame and to the side rails of the larger frame so that spacing of the magnets is identical on both frames. X-ray film is mounted on the ten-inch frame and backed by a thin sheet of lead to prevent back reflection of X-rays. This frame is then placed inside the tank at a convenient location near one of the openings. The large frame is placed against the outside of the tank opposite the small frame and so positioned that each magnet faces a corresponding magnet on the small frame through the tank wall. The two frames become attracted to each other by the action of their respective magnets.

When the outside frame is moved across the tank surface to the area to be inspected, the inner frame will follow and the film is properly positioned for the X-ray to be taken. After exposure, the outer frame is simply moved to a convenient opening and the small frame with its exposed film is recovered.

(continued overleaf)

Notes:

1. This device should be useful for X-ray inspection of any nonferrous structure where access to interior points is difficult or inconvenient.
2. Inquiries concerning this invention may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama, 35812
   Reference: B65-10110

Patent status: NASA encourages the immediate commercial use of this invention. Inquiries about obtaining rights for its commercial use may be made to NASA, Code AGP, Washington, D.C., 20546.

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