

Report No. 0809-25224

**SNAPPER™ REMOTE CONTROL
BOAT LATCH EVALUATION**

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EVALUATION OBJECTIVE

EPCO Products Inc., Fort Wayne, Indiana, requested that their SNAPPER Remote Control Boat Latch device be evaluated. The SNAPPER is a remote control boat latch to catch and release a boat from the trailer. The SNAPPER was evaluated for its resilience to loading. The device was to be loaded in a way that simulated a boat driving into the device at 1 and 2 miles per hour. The simulated boat weights were to be 3,000, 4,000, and 5,000 pounds.

CONCLUSION

The SNAPPER withstood the impact of all loadings with only minor denting of the SNAPPER mounting bracket. It should also be noted the ½" diameter stainless steel bow eye had a minor deformation.

TEST PROCEDURE AND RESULTS

Test Setup

Special fixtures were designed and fabricated that simulated a boat trailer installation and the bow of a boat. The SNAPPER was mounted to a typical trailer winch stand which was rigidly clamped to a bedplate. The simulated boat bow had a ½" diameter X 3 ½" stainless steel extended bow eye installed at an included angle of 100 degrees and was positioned at an angle of 35 degrees to the horizontal. The simulated boat bow was rigidly mounted to a hydraulic actuator that provided the loading. The test setup is included as Fig. 1 and 2.

The actuator was programmed to move at a rate of 1 and 2 miles per hour, and stop moving at peak loads of 3,000, 4,000 and 5,000 pounds. The actuator was positioned about 6 inches away from the SNAPPER, and movement started at a rate of 1 or 2 mph. For each test, motion was stopped when the load, as measured with the inline load cell, reached the desired load. It was to be confirmed that the bow eye was held securely in the SNAPPER 'jaw' mechanism at each loading.

Test Results

The SNAPPER was loaded five times at each speed and to each load. The SNAPPER was inspected after five loadings at 1 and 2 mph and up to 3,000 pounds.

- There was slight denting of the mounting bracket where the bow eye contacted it. (Fig. 5 & 6)
- The bow eye did not appear to be bent.

The SNAPPER was loaded five times each at 1 and 2 mph and up to 4,000 and 5,000 pounds.

- The mounting bracket was dented slightly more than from the initial loading. (Fig. 5 & 6)
- The bow eye was slightly bent from contact with the SNAPPER after all of the loadings. (Fig. 3 & 4)
- The winch stand upright supports were also bent. (Fig. 7)

The bow eye was held secure in the SNAPPER 'jaws' at each loading.

Testing Facility:

The test described above is an accurate description of the tests performed and the results.

Electronic original



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Fig. 1 - Overall side view of test setup.



Fig. 2 - Overall Front view of test setup.



Fig. 3 - Overall view of bent bow eye after loading and contact with the SNAPPER mounting plate.



Fig. 4 - Bent bow eye after loading and contact with the SNAPPER mounting plate.

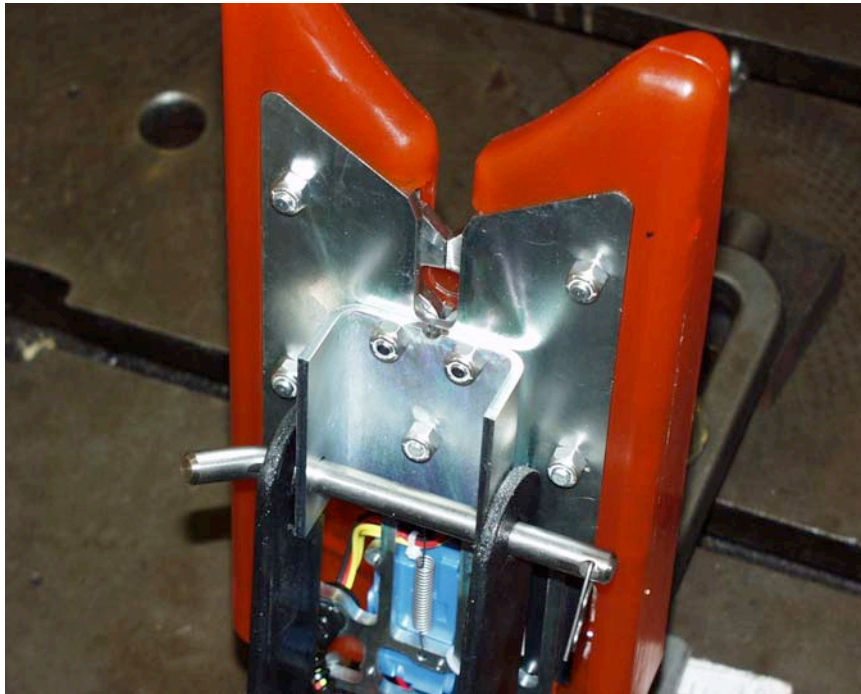


Fig. 5 - Overall view of denting of the SNAPPER mounting plate from contact with the bow eye.

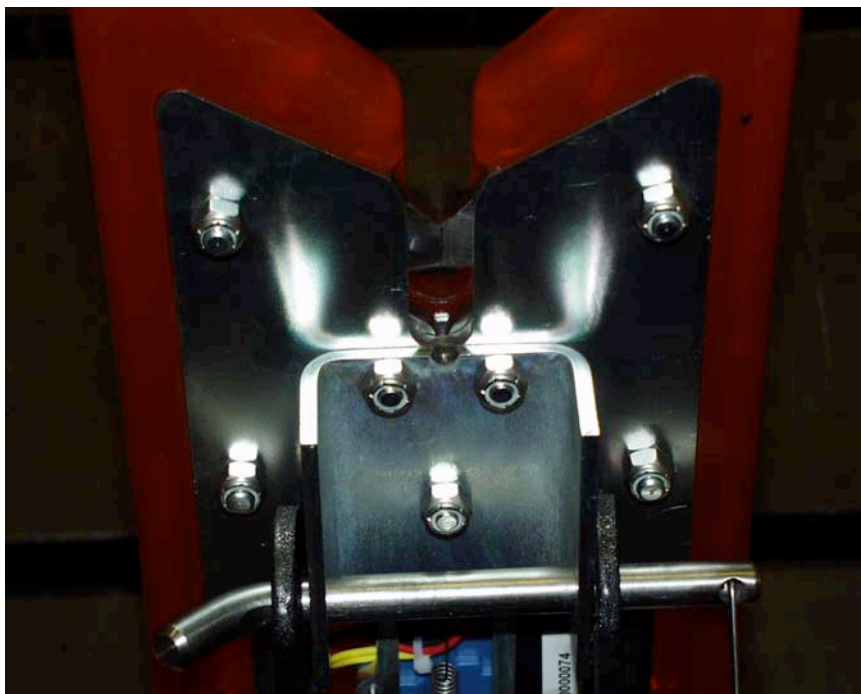


Fig. 6 - Close up view of denting of the SNAPPER mounting plate from contact with the bow eye.



Fig. 7 - Bent winch stand upright supports after loading.