MASTER

Astronuclear
Laboratory

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INFORMATION CATEGORY

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Subject: Poison Wire Retainer Pull
Test

ASTRONUCLEAR LABORATORY

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Two series of tension tests were performed on a candidate poison wire retainer mechanism. A photograph of the test setup is shown in Figures 1 and 2. In the first arrangement, the forces required to detach the retainer from the cluster hardware was determined. This scheme is one of the primary candidate designs being considered. Forces between 2.10 and 2.15 lb were required to disengage the coupling. A cross section sketch of the design is seen in Figure 3.

Forces on the plunger, compress the spring, which in turn releases the ball detent, separating the retainer from the end fitting on the stem protective cap.

The second series of tests were performed to determine the forces required to separate the retainer body from the end fitting without operating the detent mechanism in the normal manner. In this case the detaching forces which were required varied from 5.12 lb to 5.6 lbs. The dead weight of the plunger-retainer body section is .05 lbs.

The data for both series of tests are shown in Table I.

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FIGURE 1
POISON WIRE RETAINER MECHANISM TEST SETUP
FOR RETAINER BODY PULL TEST

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FIGURE 3
POISON WIRE RETAINER MECHANISM
CROSS SECTION

Run	Retainer Body Required Pull Force Lbs.
1	5.6
2	5.4
3	5.15
4	5.52
5	5.12

Run	Required Pull Force Lbs.
1	2.10
2	2.14
3	2.12
4	2.15
5	2.12

TABLE I
POISON WIRE RETAINER MECHANISM
DATA TABLE