

## Re: 100 megaton bombs atop Saturn V rockets

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Date: Tue, 20 Jul 2004 17:27:59 GMT

"Derek Lyons" <[fairwater@gmail.com](mailto:fairwater@gmail.com)> wrote in message  
news:40fe4a02.33207451@supernews.seanet.com...

> [henry@spsystems.net](mailto:henry@spsystems.net) (Henry Spencer) wrote:

> >For purposes of reference, the MIT Project Icarus effort assumed 5.5  
kt/kg

> >(a 100MT bomb weighing 40klb before the addition of spaceflight  
packaging).

>

> Almost certainly such a weapon would be *\*far\** lighter today. Not only

> because of the overall increase in efficiency, but because each stage

> adds a multiple of the explosive power, while adding a fraction of the

> weight.

>

> I've crossed this to a.w.n. as the folks there will know better than

> the folks here.

In a 1987 Scientific American article Ted Taylor stated that the practical limit for yield-to-weight ratios (YTWRs) was 6 kt/kg\*. This accords with available info about actual U.S. tests: Mk-41 test devices fired during 1958 Hardtack I test series range from 8752 to 9723 lb, with a reported fielded maximum yield of 25 Mt (these figures are taken from Chuck Hansen's Swords of Armageddon).

On the other hand in the DOE report:

"DRAWING BACK THE CURTAIN OF SECRECY: RESTRICTED DATA DECLASSIFICATION DECISIONS 1946 TO THE PRESENT"

(RDD-4) January 1, 1998

The following list of declassified facts are provided (page V-70 and 71):

b. The fact that tests were conducted of designs which could lead to an entirely new class of U.S. weapons which could have relatively low weights and extremely high yields, with the fission contributions decreased to only a few percent of the total yield. (63-1)

c. The fact that the yield-to-weight ratios of the new class of weapons would be more than twice that which can now be achieved in the design of very high yield weapons using previously developed concepts. (63-1)

d. The United States, without further testing, can develop a warhead of

50–60 Mt for B–52 delivery." (63–3)

e. "... some improvement in high yield weapons design could be achieved and that new warheads — for example, a 35 Mt warhead for our Titan II — based on these improvements, could be stockpiled with confidence." (63–3)

The notations like (63–1) indicated the year and month that each fact was declassified.

The information I have is that the Titan–II throw weight was up to 4000 kg. *>From fact e., above, this indicates that the U.S. could design high yield weapons with YTWRs of up to 8.75 kt/kg (or 12.4 kt/kg if the actual weight of the W53 warhead fielded on the Titan–II is used). Since the Mk/B41 was in service in 1963 when fact c. was declassified this implies YTWRs of >10.5 kt/kg.*

Carey Sublette

\*Taylor, Theodore B. 1987 Third–Generation Nuclear Weapons Scientific American, April 1987, Vol. 256 (4); pp. 30–39