

THE WHITE HOUSE

WASHINGTON

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MAY 29, 1962

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MEMORANDUM FOR

THE PRESIDENT

At your request, I have reviewed, in consultation with the AEC and the DOD, the technical and cost aspects of equipping nuclear weapons dispersed overseas with permissive link hardware. The object of this review was to establish the program options that were technically available to implement such a program as rapidly as possible, and to determine the amount of supplemental funds that would have to be requested in the AEC FY '63 Budget to accomplish these options.

A decision on this problem involves the following basic policy issues which, while not technical in themselves, are affected by the availability of equipment and the program timing and cost:

(1) Should a permissive link be incorporated at this time in all dispersed nuclear weapons or just in those critical weapon systems with quick reaction, high yield, and long range (e.g., Jupiter missiles and quick reaction aircraft)?

(2) Should a permissive link be incorporated at this time in all weapons dispersed to NATO (U.S. as well as non-U.S.) or just to non-U.S. weapons?

(3) Should a permissive link be incorporated at this time in weapons committed to NATO but based in the U.K. as well as weapons based on the European Continent?

These policy issues raise the more basic question as to what objective one is attempting to accomplish by incorporating a permis-

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sive link. A permissive link can attempt to meet any of the following objectives, each of which imposes increasingly difficult technical problems:

(1) Safeguarding weapons against actions by an individual psychotic;

(2) Meeting the legal and political requirements of U.S. control;

(3) Maintaining control against the unauthorized use of weapons by our own or allied military forces under conditions of high tension or actual military combat;

(4) Assuring that weapons could not be used, if forcibly seized by an organized group of individuals or by a foreign power.

The first of these objectives (safeguarding against a psychotic) has already at least in part been met and the last objective (assuring weapons could not be used if seized) cannot be fully achieved without further development which would assure the self-destruction of the weapons if efforts were made to by-pass the permissive link. For the purpose of this review, I have not attempted to meet a specific objective but rather have analyzed the operational value of the best available equipment and attempted to determine how rapidly it could be incorporated in dispersed nuclear weapons.

While the permissive link equipment presently recommended by the AEC leaves something to be desired and can clearly be much improved with time, I believe that this equipment can be used as the basis for a crash program since development quality hardware exists and initial production and installation could begin in the immediate future.

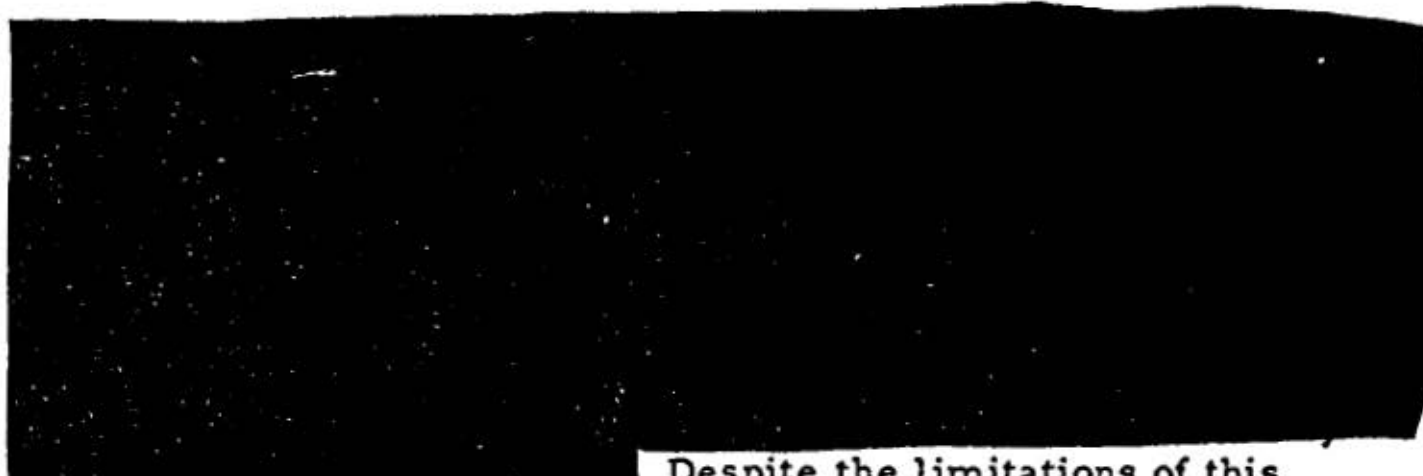
Specifically, the AEC recommends that, if a permissive link program is undertaken on a crash basis, bombs for aircraft and warheads for longer range missiles be equipped with an electro-mechanical lock which would have to receive a preset numerical code in order to make the weapon operable. In the case of certain bombs which cannot be easily retrofitted with this equipment, as an interim measure pending the development of improved compatible permissive link hardware,

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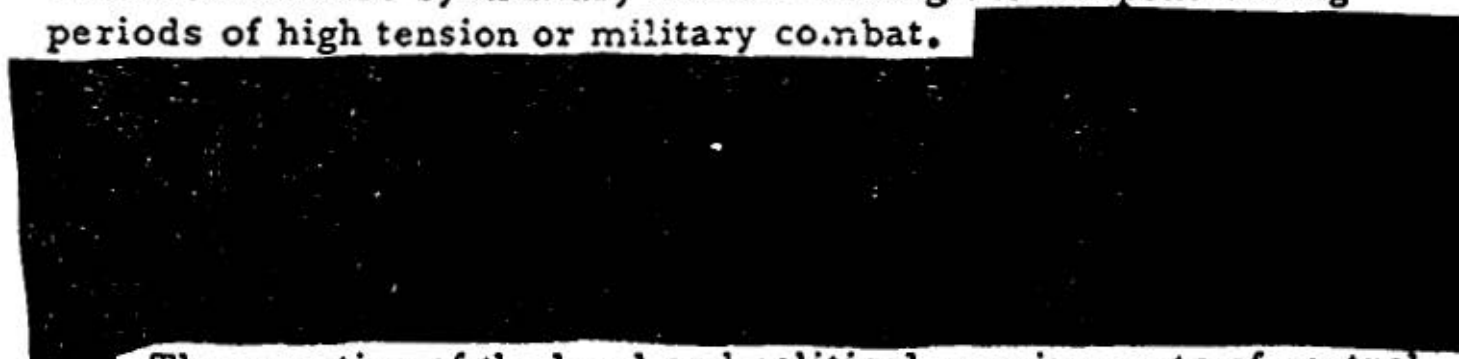
mechanical combination locks would be installed to cover a socket into which an arming plug must be inserted. In the case of these bombs as well as short range missiles, such as Honest John and Nike Hercules, and the 8-inch shell, the arming plugs would be stored in self-destruct safes. The proposed program does not include specific hardware for the Davy Crockett missile which presents a particularly difficult problem because of its small size and possible forward deployment.

The numbers which would operate both the electro-mechanical and the combination lock could be held at any echelon of command. If circumstances required, the combination could be held by the U.S. custodial officer himself. This procedure could therefore give the weapons the same state of readiness that they now possess.



(b)(1)
(s)

Despite the limitations of this equipment, I believe it would give further (and probably decisive) protection against individual psychotics and would certainly deter unauthorized use by military forces holding the weapons during periods of high tension or military combat.




(b)(1)
(s)

The question of the legal and political requirements of control were beyond the scope of my review.

The question has been raised whether the installation of this development quality hardware on a crash basis might reduce the reliability of the nuclear weapons. However, in view of the simple nature of

of this equipment and the method of installation, I believe that it is now generally agreed that it would not reduce the inherent reliability of the weapons. The weapons would, of course, not be operable if the combination number were not received from a higher headquarters. This is a communication and management problem, which can be very simple or very complex, depending on the level of command at which the combination number is held and the degree of control maintained through coding procedures or the use of different combination numbers for different weapons. In its simplest form, it should be possible to handle this procedure wherever a "go code" can be transmitted which is presumably a requirement if any control is to exist. In any event, I wish to emphasize that, if circumstances demand, a decision can be made to release the combination number to the U.S. custodian with the field unit and thereby revert to the state of readiness and control that exists today.

At my request, the AEC has estimated the cost and time for completion of the following five alternative programs, which I believe represent the full range of possible application of the permissive link on a crash basis to nuclear weapons dispersed to the European Theater:

 (b)(1)
(b)(3)
(S)

Alternative II - All nuclear weapons assigned to non-U.S. NATO forces exclusive of those assigned to U.K. delivery systems based in the U.K.;

Alternative III - All NATO weapons assigned to non-U.S. NATO forces including those assigned to U.K. delivery systems based in the U.K.;

Alternative IV - All nuclear weapons assigned to non-U.S. NATO forces and all U.S. weapons committed to and dispersed to NATO exclusive of U.S. weapons on U.S. delivery systems based in the U.K.;

Alternative V - All nuclear weapons assigned to non-U.S. NATO forces and all U.S. weapons committed to and dispersed to NATO including those based in the U.K. and assigned to the naval attack aircraft on carriers based in European waters.

The estimated completion date, total cost, and FY '63 cost

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for each of these programs is as follows:

Alternative	Estimated Date Completed Installation	Total Cost (\$ Millions)	FY'63 Cost (\$ Millions)
I	June 1963	2.9	2.9
II	Oct. 1963	8.1	7.8
III	Dec. 1963	10.2	8.7
IV	Mar. 1964	15.2	10.7
V	Aug. 1964	23.4	10.7

A supplemental to the AEC FY '63 Budget would call for obligation of the total cost of the program but expenditure of only the FY '63 cost of the program.

On the basis of this review, I have concluded that it is technically possible to equip on a crash basis all nuclear weapons dispersed to the European Theater with reasonably effective permissive link equipment at relatively small cost. Therefore, the decision as to the extent to which permissive link equipment should in fact be incorporated in dispersed weapons can be made solely in terms of broad policy considerations as to the desired objective.

Whatever decision is made on the crash program to install permissive link equipment on dispersed nuclear weapons equipment, I would recommend that a vigorous program be undertaken to develop an improved electronic lock which would be incorporated directly in the electronic package associated with all future weapons so that the option of a permissive link would always exist. This program should also include work to develop improved devices to retrofit the bombs and short range missiles which were equipped with combination locks only as an interim measure in the above crash program. I would also recommend that there be an aggressive research program to develop more advanced concepts of the permissive link including mechanisms to assure the self-destruction of a weapon if efforts were made to by-pass the permissive link. It is my understanding that the AEC has funds available to cover the R&D necessary for these advanced programs.

Jerome B. Wiesner

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