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FILE

23 March 1959

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MEMORANDUM FOR THE RECORD

SUBJECT: Flight Test of the "Jericho Horn"-2 (ED-188C)

1. The initial flight test of the "Jericho Horn", conducted 16 January 1959, proved unsatisfactory. Although the whistle functioned properly, it was impossible to obtain a sound pressure level higher than 108d.b. at 950-1000 cps. Laboratory "bench testing" rated this whistle at 150 d.b. at 1000 cps. The variation of sound pressure level between actual flight and laboratory testing is probably due to the difference in surroundings (i.e., open field area vs. closed room and observation distance.)

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[Redacted]

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two conditions occur at 120 d.b. and 142 d.b. (250-9000 cps.) respectively. In an effort to attain either of these conditions during actual flight, an air collecting trumpet was added to the whistle to increase the air mass flow. In addition, two whistles operating at different frequencies were utilized to obtain a "beat" effect. During laboratory tests it was noted that the air collecting trumpet would not increase the air mass flow as anticipated. Further investigation disclosed that due to the whistle geometry it would be impossible to increase the air mass flow by this method.

3. Flight trials were conducted on 10 March 1959 to determine the effect of two whistles set for different frequencies at various air speeds. The undersigned witnessed these trials. From observation made on the ground, no apparent increase in whistle sound power output was noted over previous flight trials. However, all data obtained from these trials have not been analyzed.

4. Although preliminary investigation indicated that such a device would make a desirable physical discomfort item, it is now doubtful that sufficient sound power output can be obtained to fulfill this requirement. If physical discomfort is desired from an item of this nature for harassment purposes it is recommended that the program be discontinued unless the data in process indicates otherwise. However, if it is desired to draw attention or create psychological identification from the ground the present item would be satisfactory, It would be desirable to obtain guidance from the FE Division as to this aspect.

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Re: attached

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Pls determine if DPD
has any interest. If so,
how about turning the
two units over to them?
There is no point in
our keeping them in
there.

DPD HAS
NO INTEREST

WE
16 Apr 59

UNCLASSIFIED INTERNAL ONLY CONFIDENTIAL SECRET

ROUTING AND RECORD SHEET

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FILE!

SUBJECT: (Optional) 50-188C

FROM: NO.
DATE
1 April 1959

TO: (Officer designation, room number, and building) DATE OFFICER'S INITIALS COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)

1.	THRU: AC/TSS/R&D C/FE	DATE		OFFICER'S INITIALS	COMMENTS																
		RECEIVED	FORWARDED																		
1.	THRU: AC/TSS/R&D C/FE	18 APR 1959	4/3	[Signature]	<p>5 to 2: The possibility of using loud sounds to affect, or seriously impair, the military capacity of an enemy was carefully explored during World War II under the auspices of the National Defense Research Committee. The work is reported in the Summary Technical Report of the Office of Scientific Research and Development, Volumes 2 and 3 of the volumes reporting the work of Division 17 of NDRC. In the individual reports in the STR reference is made to the contractors' reports on which the STR is based. A copy of the STR (70 volumes) is in the CIA library. Copies of the contractors' reports, as well as the STR, are in the Library of Congress (OSRD project). The conclusion of all the work was that loud sounds are ineffective in harassing or injuring an enemy. The work concerned sound sources on the ground, but I think that the conclusions also apply to sound sources in an airplane.</p> <p>2-5. DO NOT BELIEVE THIS "HORN" WOULD BE EFFECTIVE AS PSYCHOLOGICAL IDENTIFICATION DEVICE AND CONCUR THAT THIS PROJECT BE DROPPED. RECOMMEND DPD BE ADVISED TWO PROTOTYPE WHISTLES ARE AVAILABLE AS SHELF ITEMS.</p> <p>THANK YOU FOR YOUR EFFORT.</p>																
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FORM 1 DEC 56 **610** USE PREVIOUS EDITIONS SECRET CONFIDENTIAL INTERNAL USE ONLY UNCLASSIFIED

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31 March 1959

MEMORANDUM FOR: C/FE Division

ATTENTION :

[Redacted]

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SUBJECT : Airborne "Screamer" or "Jericho Horn"

1. In response to a request from C/FE Division dated 12 May 1958 (Request for Procurement of Airborne "Screamer"), a project was initiated to design, fabricate, and test several airborne whistles ("Jericho Horn"). The operating conditions for this device, as set forth in discussions between FE [Redacted] and TSS/ED representatives, were air speeds up to 300 miles per hour in level flight at an altitude of three hundred feet.

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2. Although initial studies involving the "Jericho Horn" were very encouraging, flight testing has not been satisfactory. It is the understanding of TSS/ED that [Redacted] is desired. At present the "Jericho Horn" does not satisfy this requirement, and it is doubtful that continued effort will achieve this end.

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3. The development of the "Jericho Horn" has been conducted in three steps: feasibility, establishment of design parameters, fabrication and testing. It was possible, during the feasibility study, to produce 400 watts of acoustic energy under laboratory conditions. This energy level would be comparable to a 50 h.p. victory siren (100 ft.)¹, approximately 150 decibels S.P.L. at 1000 cps, and represents the maximum performance obtainable for this type whistle. Design parameters for whistle control at various air speeds have been established through flight trials and information obtained from Mr. Henning Von Girke, the designer of the Stuka (JU-87) dive bomber whistle.

4. Actual flight testing of the "Jericho Horn" failed to create a physical discomfort situation. It would be necessary to produce 118 decibels (discomfort threshold) to 142 decibels (pain threshold) S.P.L. or greater @ 1000 cps¹, at the target area for physical discomfort. Flight testing produced a maximum of 110 decibels S.P.L., 1000 cps, at one

¹"Handbook of Noise Measurement", General Radio Company, 1954

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hundred feet; comparable to jet engine test control room noise.¹ As the altitude increases the sound power output decreases by six decibels as the distance is doubled from 100 feet. At 100 feet altitude, 110 decibel output; at 200 feet altitude, 104 decibel output; at 400 feet altitude, 98 decibel output; and so on. For an altitude of 300 feet, the sound power output for the "Jericho Horn" would be comparable to the inside of a Chicago subway car¹; hardly a physical discomfort situation. The addition of more than one whistle increases the sound power output by three decibels for each additional pair. Consequently, at least four whistles would be required for an increase of six decibels and eight whistles for a nine decibel increase.

5. Since it appears impossible to fulfill the original request for an airborne "Screamer" [redacted] TSS/ED requests that you indicate whether this whistle would be useful as a psychological identification device. It does produce enough noise so that it is distinctive and an airplane using it would definitely be heard although it would not cause the listener any discomfort. If this whistle cannot serve any useful purpose as a psychological identification device, it is our recommendation that this project be dropped. Two prototype whistles have been fabricated under this program and any recommendations as to their disposal would be appreciated.

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6. For any further information, please contact the undersigned or [redacted] Room 210, West Outbuilding, [redacted]

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[redacted]

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Chief
TSS/Engineering Division

DD/P/TSS/ED [redacted]

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