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OXC-11168-66

Copy 1 of 9

18 October 1966

MEMORANDUM FOR ; Director of Special Activities

SUBJECT : In-Flight Feeding/Drinking Capability

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1. In the early developmental history of the pilots protective assembly an in-flight feeding port was considered, according to However, the only device available at that time was one made by Minneapolis-Honeywell and it was not compatible with the helmet developed by the David Clark Co. The requirement for such a port was apparently never firmly established however, and it was not included in the specifications for the helmet subsequently procured.

2. In the follow-on research and development effort carried on by the David Clark Co., such a port was included in an improved helmet design being considered in March 1964. Since this helmet was a long term follow-on program, it was recommended that a drinking port be evaluated in a spare or back-up helmet prior to producing the new helmet.

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3. A prototype drinking port was designed, fabricated and factory tested by David Clark Co. in the period of March - July 1965. This item was installed on subject 1046's helmet in July 1965 but was considered unacceptable by personnel because of the difficulty in locating the fixture for tube insertion and because the internal hardware came too close to the pilots chin. The item was removed from the helmet and was never flight-tested as reported in November 1965. No further action was taken on a helmet modification by David Clark or Headquarters.

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4. In May 1966, LAC ECP 66-47 () was approved by Headquarters This ECP consists of a new cabin pressure regulating valve which would allow the pilot to utilize a 5 psi differential cockpit pressure instead of having the cockpit and ambient pressure equal up to 26,000 feet. This control would allow the pilot to have

USAF review(s) completed.



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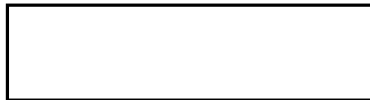
27 September 1966

MEMORANDUM FOR THE RECORD

SUBJECT : Trip to David-Clark and Firewel Companies.

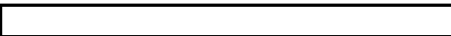
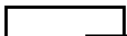

1. A visit to the David-Clark Company was made on 12-13 September 1966. Company personnel contacted were:

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The following areas/items were discussed:



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a.  anti-reflectance visors were discussed at length in order to acquaint the undersigned with the developmental history and the present status of this item. One two-layered-coated visor and one three-layered-coated visor remain to be delivered for flight evaluations. All pilots who have flown this item agree that it overcomes the majority of reflectance problems. It is interesting to note that the E program SPO has allocated funds to purchase 50 of these visors. I will take action to encourage  life support to allow every driver to evaluate a  visor. I feel this visor is the only practical solution to the reflectance problem other than flying without a visor (ie, use of the mask-integrated helmet which is apparently an unacceptable alternative to most drivers).

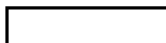
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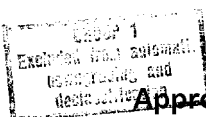
b. Improved Flotation - As a result of the  accident, LAC  has made several proposals in the area of flotation. In general these proposals are aimed at being able

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to recover an unconscious or incapacitated pilot in the water. David-Clark was given a verbal go-ahead to investigate two items to parallel [redacted] proposals. One is an accessory flotation device to be mounted somewhere on the frontal area of the outer garment. The second item is a life raft with an open end for easier boarding. In addition, [redacted] is working on relocating the present inflator and lanyard for the flotation garment to a more accessible position. Also the areas of the flotation garment that presently show chafing are being beefed-up with patches.

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c. Helmet Improvements - A positive visor hold-down latch which would prevent the visor from opening if the valve was damaged and negative g's encountered was discussed. With such a device, visor seal inflation could be retimed to prevent seal inflation before the visor is in the fully closed position. These actions, in addition to flushing the left hand visor actuating valve into the helmet should preclude the chain of events that was encountered by [redacted]

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d. Thermal Improvements - The study of thermal conductance/reflectance by various suit materials performed by [redacted] was reviewed. This study, once further temperature measurements are supplied by [redacted] Life Support, should identify the proper combination of materials for optimum thermal balance.

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e. Bonded Storage - In the past, delivery schedules have not been met due to certain long-lead time items for both suits and helmets. It is proposed therefore that such items (only those without a shelf-life) should be placed in bonded storage to insure prompt delivery of needed assemblies. [redacted] will send me a list of applicable items which I will go over with [redacted] (CMD/COMPT/OSA) prior to approving this plan.

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2. A visit to the Firewel Company was made on 14 September 1966. Company personnel contacted were:

[redacted]

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[redacted]

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The following items were discussed:

a. Controller Hardware Improvements -

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[Redacted] (LAC) has sent plans for new controller connections to Firewel as a result of two instances where a brazed joint in the present fitting was broken by the lap belt that did not remain secured under stress. The concept of strengthening these fittings may seem reasonable at first glance, however some questions need to be resolved prior to adopting these new fittings. If the fittings are beefed up but are still subject to impact by the lap belt it is likely that the cast aluminum controller housing may fail at the interface instead of the fittings themselves. If so, the problem has not been resolved. I believe every effort should be concentrated on improving the lap belt to prevent such failures in which case controller hardware improvements may not be necessary. The same comments apply to a controller cover that LAC has proposed and designed. Also such a cover may cause impaired vent flow thus producing back pressure and suit inflation at unwanted times in flight. Such a cover may not be required if the lap belt functions properly.

[Redacted]

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CAPT. USAF BSC
ASD/R&D/OSA

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ASD/R&D/OSA/[Redacted] gp (26 September 1966)

Distribution:

- Cy 1 - ASD/R&D/OSA
- 2 - D/R&D/OSA
- 3 - AT/R&D/OSA
- 4 - D/SA
- 5 - D/O/OSA
- 6 - OXC/O/OSA
- 7 - CMD/COMPT/OSA
- 8 - chrono
- 9 - RB/OSA

[Redacted]

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