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ARROW 3 PROPOSAL

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In the past proposals have been submitted in the form of:

- (a) Arrow 4 - M 2.7, 1,000 mile radius  
external ramjet - fuel pods.
- (b) Arrow 5 - M 2.3, 1,300 mile radius  
external fuel pods.
- and now (c) Arrow 3 - M 3, 500 mile radius  
no external stores.

of which the most recent one, the Arrow 3, has been prepared by the Technical office.

In the absence of a cost estimate for the Arrow 3, a careful reading would indicate that the cost of an Arrow 3 prototype would be comparable to the Arrow 5, and somewhat less than the Arrow 4. Consequently, the cost should not dictate the choice of the aforementioned aircraft. Necessity and development potential should be the deciding factor, and this can be done via operational research.

The feasibility of Arrow 3 performance hinges on the development of a suitable insulation which in effect will blanket the entire airplane. This philosophy is sound in itself inasmuch that all the systems are provided with thermal insulation for the proposed M 3 performance.

As we have shown in the past, the main development barrier is the main undercarriage. If extensive work is to be done on the main undercarriage would it not be better to completely re-engineer it, as we have suggested for the Arrow 4 and 5, thus reducing development barriers to a minimum. This point deserves some careful consideration particularly so if there should ever be a requirement for a greatly increased range and performance following a possible Arrow 3 choice.

The adoption of sculptured structure cleans up and simplifies the airframe. However, additional milling machines will be required to accommodate this change.

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In general the Arrow 3 proposal, being the result of a M 3 and maximum internal fuel spec, is well prepared but one cannot help but think that the internal fuel principle is carried a bit too far by storing an additional 95 gallons of fuel in the fin, which is modified to adopt sculptured structure.

W. Kuzyk.

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c.c. Mr. R.F. Marshall

#### ARROW 4 COMMENTS

1. The ARROW 4 could very well serve as a high altitude firing platform for specialized missiles.
2. An ARROW 4 equipped with ducted rockets could serve as a short radius high altitude high performance interceptor featuring an unusually high rate of climb and a consequent reduction of the scramble to kill time.
3. The ARROW 4 is an extremely flexible aeroplane. This is shown by the variety of mission profiles it can fulfill.