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3 April 1956

MEMORANDUM FOR: Colonel Terhune

SUBJECT: Interchangeability of ICBM, IRBM, and WS 117L Hardware and Mutual Interference of These Programs.

1. Extent of interchangeability

A. Missile Hardware:

It is expected that the SM 65 airframes' propulsion systems and autopilots used on the WS 117L program will be substantially the same as those used on the WS 107A program. Every effort will be made to keep these items identical and hence interchangeable.

Certain components of the guidance system, probably the gyros and possibly the complete stable platform, will be interchangeable with the AC-WS 315A, although it is possible that a NAA system will be used.

B. AFMTC Facilities:

For the WS 117L program, construction of one new launch complex is planned. This complex will be essentially the same as the SM 65 complex with minor changes and several equipment additions. It is intended as availability of the SM 65 stands permits, to make the changes and to add extra sets of satellite vehicle (nose cone) checkout and servicing equipment so that eventually all five of the SM 65 stands will be capable of accepting either a standard SM 65 or a WS 117L vehicle. This procedure will gain additional scheduling flexibility for both programs.

Supporting ground facilities connected with receiving and preparing the SM 65 airframe for flight can be used for these purposes whether the booster is intended for use on the WS 107A or WS 117L programs.

Ground equipment for fuelling and checking out the SM 65 airframe propulsion system and autopilot should be interchangeable between 107A and 117L programs.

Certain tracking and telemetering equipment at AFMTC will be used in common.

2. Slowdown to ICBM and IRBM Programs: Resulting from WS 117L Activities:

The proposed ARS program requires the fabrication of approximately one additional SM-65C missile (airframe, engines, autopilot) per month with deliveries beginning in early 1958. This represents approximately a 25% increase in production capacity at that time. Convair will be required

DOWNGRADED AT 12 YEAR
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MEMO TO: Col. Terhune, subject: Interchangeability of CBM, IREM, etc.

to plan for and carry out this increase, with a consequent dilution of planning effort. It is felt that the boosters could be provided through an AF controlled subcontract to Convair, or through a direct Air Force contract as at present.

Some thought has been given to the use of 107A - SM 65A spares for early non-orbiting flights, but this would be strictly on the basis of availability in excess of 107A program needs.

In addition, it is planned that Convair will be asked to verify the structural integrity of the airframe, and its stability and controllability with the new nose cone.

The preferred method of handling launchings at AFMTC is for Convair crews to handle the booster, and for WS 117L contractor and subcontractor personnel to service the orbiting vehicle and exercise overall control of the operation. Alternatively the 117L contractor could supply trainees to Convair during the earlier parts of the program and then handle ARS launchings completely. In either event, a larger launch team must be trained in order to handle the extra load.

The 25% increase in the flight schedule will increase the scheduling interference at Patrick. If, for example, both adjacent stands must be cleared during count down on any one, there will be mutual interference.

The most nebulous, yet perhaps the most serious interference area will be that of range scheduling and data reduction. This can be reduced by independent supplementary telemetering equipment, by foregoing optical coverage, and by preparing more than one missile for each test mission. The ARS contractor will be prepared to provide his own radar tracking and reduce this data himself.

There will be an interference in the area of base support (housing, messing, etc.) which can be partially alleviated if we plan for it now.

The only interaction foreseen between the IREM and the ARS, other than overall range loading at AFMTC, is in the guidance area. It may be advantageous to make use of portions of the AC system for the ARS. If AC does not have the capability for handling the added requirements, the ARS guidance program at NAA has developed a comparable-and-hungry-source.

SIGNED

R. C. TRUAX
Commander, USN
Assistant Deputy
WS 117L Weapons System Office

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