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SPEED TRIALS YF-12A

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General Stewart

1. ASSUMPTIONS:

a. Since the President has publicly announced the DOD has been directed to break the speed record, every reasonable effort will be made in CY 1964 to do so. Further, it has been inferred that the speed would be in the vicinity of 2,000 mph.

b. An interim operational capability with the A-12 is desired by not later than mid-November.

2. INFLUENCING FACTORS:

a. Much remains to be done in the flight test program. Engine control above Mach 2.4-2.6 is the critical item (control of inlet shock position using either the latest Ham Standard or LAC equipment is far from a routine operation).

b. All flight test above Mach 2.95 has been done in one aircraft (# 121).

c. The best equipped and most capable aircraft in the overall fleet are #'s 129 and 121; these are the primary contractor test aircraft. Conversely, the least capable (and lowest priority aircraft) are the YF-12A's which are restricted to Mach 2.6 and are flying with fixed "spikes."

d. Much remains to be done in the operational training program.

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Although several mission pilots have accumulated considerable hours in the A-12 aircraft, severe operational limitations have been imposed because the R&D program is not yet far enough along on both aircraft and mission sub-systems. No realistic operational training missions have yet been flown.

e. The program currently is hampered by equipment shortages and deficiencies: hydraulic actuators^{ORS}; "J-model" afterburners; and the latest model inlet controls. Of the three, all are in short supply, ~~but the afterburners are controlling.~~ See attachment 1 for "get-well" schedule.

f. The probability of setting a new speed record on the first try is by no means a 90 percent certainty--even if the aircraft operates perfectly--since a high degree of flying precision is required at Mach 3 speeds and 80,000 feet altitudes. The possibility of missing the "gates" and "corridors" is significant. The closed-course speed run (if a speed of 1800-2000 mph is desired) is a more difficult operation than the straight-line run.

g. The first R-12 (in major sub-assemblies) will be delivered to Palmdale in late October.

3. POSSIBLE COURSES OF ACTION:

a. As a cover, redesignate # 121 or # 129 as the XSR-71, "borrow" a tail number from the R-12 "black", ferry to Edwards AFB and set the speed run as soon as possible. Practice run could be made in a YF-12A

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at a lower Mach number. The probability of success is good; however, this would disrupt the flight test program from 2-4 weeks, delay the interim A-12 operational capability by a like period, and offers some security risk to the OXCART Program.

b. Divert hydraulic actuators, "J" engines and afterburners, and inlet controls to a YF-12A aircraft (or two aircraft) and run the speed trials in September. Except for eliminating the security risk, this option has the same disadvantages as 3a above.

c. Same as 3a above, except wait until the first R-12 is delivered to Palmdale. Practice runs would be made in a YF-12A at lower Mach numbers. This possibility lessens the security risk to the OXCART Program and has less impact on the flight test program. Hopefully, it would not delay the attainment of an early interim operational capability with the A-12 aircraft.

d. The contractor believes he could prepare a YF-12A for the speed runs by end-October without disrupting the flight test program or slipping the A-12 interim operational capability. In this option, # 121 or # 129 (designated as the XSR-71) could be used as a back-up and practice runs made in an unmodified YF-12A. If # 121 or # 129 had to be used, there would be a certain amount of security risk to the A-12 Program

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and some disruption to the flight test program.

e. Same as 3d above, except not use # 121 or # 129 as a back-up. If only one YF-12 were modified, the chances of success in late October are lessened. It would appear that a good likelihood of slip into November or December would exist.

f. Modify the YF-12A's routinely as scheduled and run the speed trials when available. It would appear that the speed runs would then be made in January or later.

g. Conduct the speed runs using R-12 (SR-71) aircraft. The speed runs, under this option, probably could not be reasonably conducted before the spring of 1965.

4. RECOMMENDED COURSE OF ACTION:

a. Set up a target date of late October. Start preparing one YF-12A (actuators, afterburners, inlet control, etc) for the record attempt without disrupting the flight test program and/or the interim A-12 capability. Conduct practice runs with the Mach-limited YF-12A's in mid-October. At that point in time, if the YF-12A up-dating is behind schedule, the possible use of 121 or 129 (designated as an XSR-71) can be re-evaluated.

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