

~~SECRET~~

HANDLE VIA BYEMAN SYSTEM ONLY

RT DATA ENTERED  
DATE 6/25/87  
 MICROFICHER  
DATE 6/26/87

DEC 16 1966

MEMORANDUM FOR DR. BROWN

SUBJECT: Status of MOL Program Contracts

Dr. Flex requested that we provide a summary paper for your possible use in discussions with Mr. McNamara on the current status and provisions of the contracts which we have negotiated for the MOL Program.

Insofar as all of the contracts negotiated to date are concerned, we have not contracted for the total program. In the case of each of the contractors, we have deferred certain items pending improved definition of our requirements. A prime example of items which have been deferred across-the-board are the manpower requirements to support out-of-plant or field test operations for all of the contracts concerned. There are certain other categories of equipment for which we have deferred contractual coverage pending improved definition. Examples are: data readout system, various spares and some test activities. The total amount deferred is \$295.0 million.

As you will recall, we negotiated a CFFF development contract with Eastman Kodak in August for a total price of \$258.5 million. The fee is 7.8 percent so that \$240.3 is contract cost and \$18.2 is fee. Work under this contract is progressing essentially on schedule at this time.

Insofar as the Titan IIM launch vehicle is concerned, we have negotiated fixed price incentive contracts with two of the four associates involved.

The contracts that have been negotiated are with Martin Company in the amount of \$157.8 million and the AC Electronics Company in the amount of \$26.9 million. The contract with Martin Company calls for a target cost of \$143.3 million and 85/15 sharing of cost variances from that target cost and performance incentives which add to the cost incentives amounting to approximately a 6 percent swing above costs and a 3 percent swing below. The

DORIAN

~~SECRET~~  
Page 1 of 6 pages  
Copy 3 of 5 copies  
SAF-SL BYE 21288-66

~~SECRET~~

CLASSIFIED BY: [unclear]  
DATE: [unclear]



BYE-21288/66

3

0

10

~~CONFIDENTIAL~~  
~~SECRET~~

performance incentives involve schedule, weight and overall booster performance. The incentives on schedule are all negative and amount to a total possible decrease in fee of \$1.1 million. The schedule incentives are pegged to about 100 different manufacturing and assembly events. Some of the loss can be recovered if key launch dates are met despite slippage during manufacturing assembly and test. The weight incentive is related to airborne weight with penalties being assessed if Stage I is overweight by 197 pounds or more and/or Stage II overweight by 92 pounds. The weight incentives are negative only and may detract \$700,000 from the fee. The \$700,000 is spread over the seven flight vehicles with developmental and early operational vehicles more heavily weighted.

The flight performance incentives heavily emphasize launch vehicle ability to place the MOL payload into the desired orbit. Shown below is the matrix of failure combinations and the adjustment to target profit.

	<u>Development Launches (Total of 2)</u>	<u>Operational Launches (Total of 5)</u>	<u>Adjustment to Target Profit</u>
Failures *	0	0	+ 5.4 million
	1	0	3.7 million
	2	0	- 2.0 million
	0	1	- 3.4 million
	1	1	- 4.7 million
	0	2	- 4.7 million

\*Failure defined as any malfunction which results in not making 3 $\sigma$  performance on orbit injection.

Although not a part of the fee structure, provision is made for a group bonus to be shared by the five Titan III associate contractors for on-schedule, perfect launch performance for all flights.

The AC Electronics Company fixed price incentive contract has a cost of \$24.5 million, an 80/20 sharing arrangement with a ceiling of 123 percent. The overall performance incentives amount to a plus or minus  $4\frac{1}{2}$  percent. There are negative schedule incentives amounting to \$340,000 and a positive schedule award of \$170,000 for the early delivery of two specific critical items.

DORIAN

Page 2 of 6 pages  
Copy 3 of 5 copies  
SAF-SL BYE 21283-66

~~CONFIDENTIAL~~  
~~SECRET~~

~~SECRET~~

GROUPS TO WHICH APPLICABLE ONLY

There is a plus or minus \$57,000 incentive on weight to be paid for variances of plus or minus 10 pounds from nominal guidance equipment weight. Major performance incentives, related to the ability of the guidance equipment to provide appropriate switch-over from the AC system to the redundant guidance systems of the Gemini, and minor incentives are provided for appropriate data recovery via the telemetry system. The AC Electronics Company also shares in the group bonus.

We are currently negotiating with United Technology Center for the 7-segment solid rocket motor development and procurement of flight hardware and with the Aerojet-General Corporation for development of the increased expansion ratio rocket engine and certain other developmental improvements. These two contracts will both be fixed price incentive type.

The McDonnell Aircraft Company has entered into a fixed price incentive agreement with the Government. The target cost is \$163.2 million, the fee associated with target cost is 10 $\frac{1}{2}$  percent, with a par performance ceiling at 128 percent. The sharing ratio for overruns or underruns is 80/20 and we have provided for a performance incentive variance of plus or minus 4 percent for above or below par performance.

The performance incentives for McDonnell Aircraft amount to approximately a plus or minus \$6.5 million. Three-quarters of this amount is incentivized for mission performance, including crew safety, overall vehicle performance on-orbit, a factor for data recovery, and a factor portraying the degree of successful ascent and re-entry. Ten percent of the total is incentivized for weight which provides for a bonus or penalty of roughly \$2,000 per pound of weight decrease or increase over specified weight. The schedule incentives amount to the remaining 15 percent of the total incentive and are attached to the availability of specific critical items on our schedule dates. Schedule incentives are mostly negative. There is a general provision for weighting the early flights at a higher incentive. As an example, Flight #3 is weighted at .35, Flight #4 at .289, Flight #5 at .266 with the remaining 10 percent attached to the Gemini B Qualification Flight. It should be noted that all of these incentives have not been completely negotiated in detail. The extent of the performance incentive, i.e., plus or minus 4 percent for above or below par performance, has been negotiated; but there are still discussions on some of the details I have outlined above.

DORIAN

Page 3 of 6 pages  
Copy 3 of 5 copies  
SAF-SL BYE 21283-66

GROUPS TO WHICH APPLICABLE ONLY

~~SECRET~~

We have recently completed our negotiations with the General Electric Company and have defined with them a cost plus incentive fee type contract. Target cost is \$157.4 million, fee for target cost is at 8 percent and performance incentives provide for an additional 6 percent fee. The cost sharing on overruns or under-runs amounts to 85/15, with zero fee being attained at \$173.1 million and continuing thereafter.

The performance incentives for the General Electric Company again fall in the categories of schedule, weight and on-orbit performance. Schedule incentives are negative for a maximum of \$750,000. In all cases they are attached to critical items, need dates and penalties accrue on a daily basis. As an example, one particular set of mission module forward section equipment contains penalties of \$1,300 per day for a maximum penalty of \$61,000 for late delivery of that particular set of equipment. Weight incentives are both positive and negative with a maximum bonus of \$500,000 spread over the several flights being provided for savings of 200 pounds or greater and penalties to a maximum of \$750,000 spread over several flights for overweight of 300 pounds or greater. The flight performance incentives are computed in accordance with the formula outlined below on a per-flight basis and provide plus incentives only if par is achieved.

$$\text{POINTS EARNED} = \frac{100 R K_C K_D}{P}$$

R = Number of orbits until first critical event  
i.e., GE equipment malfunction)

K<sub>C</sub> = Crew Safety Factor (1.0 for safe return,  
0 for loss attributed to GE)

K<sub>D</sub> = Data Return Factor (1.0 - data collected loss  
due to GE)

P = Number of orbits planned

Par = 60%

Douglas schedule incentives are both positive and negative and are based on a point system for each flight. A certain number of points are given for the shipment of critical end items of equipment, as well as for the integration of various equipments received

DORIAN

Page 4 of 6 pages  
Copy 3 of 5 copies  
SAF-SL BYE 21288-66

by Douglas from other associate contractors. One of the schedule incentives is positive only, essentially a bonus for insuring availability of the simulator at an early date. Others are negative only, such as failure to launch by a specified date. Par performance on schedule incentives requires the achievement of approximately 60 percent of the total possible points assigned to schedule incentives.

Incentives on weight are both positive and negative, amounting to approximately \$2,000 per pound. Weight increases or decreases are straight-lined from specified weight to a plus or minus 750 pounds from that value.

The mission-oriented performance incentives for Douglas are quite complex. They are tapered with higher incentives for above par performance on earlier flights. The total proportion of incentive allocated to the three manned flights are .236, .184 and .167. The incentives for the last two automatic mode flights are .184 and .179. In addition to the feature of tapered incentives, the total mission performance incentive formula contain considerations of crew safety, data recovery, orbital time achieved, mode of operating conditions on-orbit, primary mission accomplishment and on-orbit communications. In general, positive incentives are provided if par performance is achieved with penalties for below par performance. Par is about 60% of maximum possible performance. The crew safety factor incorporated provides for a value of either zero or one, with one being complete success and zero being loss of crew due to any malfunction due to Douglas.

The Douglas Aircraft Company contract is, of course, the largest and we have spent considerable time to define a contract which recognizes the developmental nature of the laboratory and at the same time provides suitable incentives to the contractor to encourage his effective management. We have arrived at a fixed price incentive contract with Douglas. The target cost is \$625 million for which he will receive a  $3\frac{1}{2}$  percent fee. We have provided for an incentive structure which will limit the Government's liability to not more than \$875 million. That ceiling includes all of the cost and performance incentives which he can possibly achieve. All incentives then fall inside our ceiling figure. Furthermore, if the contract costs approach \$750.0 million, the performance incentives are drastically reduced. The cost incentives provide for an 80/20 sharing and the performance incentives provide approximately a

DORIAN

Page 5 of 6 pages  
Copy 3 of 5 copies  
SAC-SL BYE 21288-66

~~SECRET~~

SECRET VIA AIRMAIL

5 percent swing which add to or subtract from his basic fee and cost incentives. We have also provided for a variable target cost permitting the contractor a slightly higher cost for outstanding performance. The absolute ceiling is 140 percent of normal target cost and 137½ percent of nominal target price. If one were to apply the usual formula when considering performance incentives as outside the ceiling, a comparable figure for an effective ceiling for par performance would be 13½ percent based on nominal target cost.

In addition to the foregoing summary, I have attached a large amount of detailed information, covering all the incentives for all contracts, the formulae used for mission performance and rationale for the factors involved. This information was very recently received and has not been screened nor completely assimilated. I should appreciate its return when you have no further use for the data.

SIGNED

HARRY L. EVANS  
Major General, USAF  
Vice Director, MQL Program

DORIAN

Page 6 of 6 pages  
Copy 3 of 5 copies  
SAF-SL BYE 21288-66