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AUTHORITY

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QUARTERLY PROGRESS REPORT NO. 1

May 20, 1963 to August 20, 1963

CONTRACT NO. AF 04(611)-9064

ROCKET RESEARCH LABORATORIES
EDWARDS, CALIFORNIA

"DESIGN, DEVELOPMENT, AND FABRICATION OF ULTRA-HIGH STRENGTH SOLID PROPELLANT ROCKET MOTOR CASES"

CURTISS-WRIGHT CORPORATION
WRIGHT AERONAUTICAL DIVISION
WOOD-RIDGE, NEW JERSEY

Prepared by:

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Program Manager

This initial quarterly progress report will denote all work that has been accomplished since the awarding of the subject contract. Part of this progress report is a Program Planning and Status Chart which is a pictorial representation of work actually performed and a schedule of events yet to be performed. Below is listed a detailed account of all progress made in the areas noted on the Program Planning and Status Chart.

1. RAW MATERIAL

Difficulty has been encountered in obtaining the dome and centerbody forgings for the contracted rocket motor case. Our forging vendors have experienced great difficulty in obtaining heats of material which would satisfy the necessary stringent specifications for this program. The initial heats of this material were found to be unacceptable to the specification that would allow it to meet the desired strength level of the rocket motor case.

The dome vendor, however, has successfully obtained a satisfactory heat of material for the forward and aft dome forgings. The first set of dome forgings will be shipped on August 30, 1963. The remainder of the dome forgings will be shipped on September 27, 1963. Due to the nature of this program, we will only be able to machine one set of forgings prior to a hydroburst test so that the initial delivery is of the only concern at this point.

The centerbody forging vendor has had a little more difficulty in obtaining a satisfactory heat of material and anticipates, at this point, to ship the centerbody forgings on September 27, 1963. This centerbody material is of a very critical nature in that this material will be used to establish our shear spinning parameters. Specimens from this material will also be used in the investigation to determine the optimum heat treatment required for these cases.

Both the dome and centerbody delivery schedules have been delayed to the point that the final 2 cases are scheduled for shipment on April 24, 1964. This represents a slippage of eleven weeks from the contract delivery dates. All efforts will be made, however, by WAD to improve upon these final delivery dates.

The skirt forging vendor has experienced difficulty in butt welding the ring forgings. It is anticipated, however, that he will ship these forgings by August 30, 1963 and this slippage is not considered serious as to effect the end delivery of the final cases.

The weld wire has been received at WAD and is now undergoing a series of extensive tests prior to being accepted for production welding.

2. ENGINEERING DESIGN

The initial design work for the centerbody, skirts, forward and aft domes and the basic case has been completed. This design is represented by the

shop drawings LS 29438, Sheets 1 and 2, forwarded to the Air Force on July 19, 1963. The stress analysis substantiating this design (Special Report No. 1) was also forwarded with the drawings at that time. Approval of both the drawings and stress analysis is required per contract before fabrication can commence. Any delay in receipt of approval beyond August 30, 1963 will result in a slippage of the final delivery dates.

The design presented will represent the configuration of the first rocket motor case to be fabricated. The first case is now scheduled to be hydroburst tested on January 10, 1964. Any design changes found necessary at this time will be incorporated into the subsequent cases fabricated.

3. PROCESS ENGINEERING

The necessary tool design and procurement is underway and all tooling will be available prior to its need in the fabrication cycle. This includes the tooling before and after heat treat.

All of the inspection check sheets are being prepared in accordance with the Program Planning and Status Chart and will be available prior to the completion of any machine operations.

4. WELD AND SPIN DEVELOPMENT

It is planned to take one of the skirt forging rings and shear spin it into a weld test ring. This weld test ring will duplicate the welding geometry of the contemplated weld joint used in welding the case assembly. When this ring is completed our welding engineers will develop a suitable welding schedule, using the same weld wire that is to be used in the actual case welding. Only after our welding engineers have completed their investigation and development work and are thoroughly satisfied, will any production welding be performed.

The weld schedule development program will be performed per the attached chart and will have been arrived at in sufficient time prior to its need in the production processes.

5. SUMMARY

All of the WAD in-house efforts are on schedule, as noted on the Program Planning and Status Chart. Raw material delivery, however, has effected the final case delivery date. All efforts are being made to minimize the required cycle times affected by these delinquent deliveries in order to improve upon the shipping dates of the final cases.

PROGRAM PLANNING & STATUS CHART (REVISED 8-20-63)
CONTRACT NO. AF 04(611)-9064
ROCKET RESEARCH LABORATORIES
EDWARDS, CALIFORNIA
MAY 20, 1963
CPIF CONTRACT

18% NICKEL PROGRAM
EAFB - 4 ROCKET MOTOR CASES

SCHEDULED EVENT - ONE TIME
SCHEDULED EVENT - TIME SPAN
EVENT COMPLETED
ANTICIPATED SLIPPAGE
ACTUAL SLIPPAGE
RESCHEDULED EVENT
PROGRESS ALONG TIME SPAN