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DEVELOPMENT PROGRAM PROJECTS OF A CONTINUING NATURE

The detailed cost forecast attached indicates the cost of carrying certain continuing Development projects further than will be possible under the Development Program which terminates September 30, 1960.

In our view, the Development Program should terminate with the delivery of the first operational aircraft and, accordingly, we have limited the statement of work for the Development Program to that date. It will be appreciated, however, that certain engineering testing and evaluation work, other than Engineering Support to Production, which stems from the Development Program would normally continue for some time in parallel with squadron production. Accordingly, we have shown those items which might be covered under separate contract provision (similar to the Project K arrangements on the CF-100 Program) if the RCAF and DDP so request.

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WORK IN PRODUCT IMPROVEMENT CONTRACT WHICH COULD BE
CARRIED ON AFTER SEPTEMBER 30, 1960

| | Oct.1/Mar.31 1960/1961 | 1961/1962 | TOTAL |
|--|---------------------------|-----------|---------|
| | \$ | \$ | \$ |
| <u>1.1</u> Preliminary engineering of the Arrow Aircraft | 50,000 | 33,600 | 83,600 |
| <u>4.1.3</u> Design, specification and operation of systems analysis and flight simulation aids, including analog computer, for use in stability, control, autopilot and airframe systems problems. Operation of cockpit simulator and flying control test rig in conjunction with analog computer shall be included. | 75,000 | 26,250 | 101,250 |
| <u>4.2.4</u> Structural and systems ground testing including the design and specification of test specimens and the design and construction of test rigs and facilities. Major items covered by this paragraph are: | 150,000 | 52,500 | 202,500 |
| (a) Arrow 1 and 2 air conditioning. | | | |
| (b) Arrow 1 and 2 fuel system | | | |
| (c) Flying controls. | | | |
| (d) Landing gear | | | |
| (e) Static test aircraft | | | |
| (f) Genie/Falcon weapon pack including ground firing. | | | |
| <u>4.3.2</u> Instrumentation for Avro flight test program: | 250,000 | 157,500 | 407,500 |
| (a) Design and specification of airframe sensing and airborne data recording instrumentation. | | | |
| (b) Design of instrumentation installation including the manufacture of special parts for mounting, and installation, check-out and calibration of instrumentation. | | | |
| (c) Design, provision and installation of changes to airborne instrumentation. | | | |
| (d) Maintenance of airborne instrumentation. | | | |
| <u>4.3.5</u> Instrumentation for Orenda Engines Limited flight test program: | 35,000 | 26,250 | 61,250 |
| (a) Design of the installation of airborne data recording instrumentation. | | | |
| (b) Installation, check-out and calibration of instrumentation. | | | |
| (c) Assistance with the maintenance of and changes to instrumentation. | | | |

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| | Oct.1/Mar.31 1960/1961 | 1961/1962 | TOTAL |
|---|---------------------------|-----------|-----------|
| | \$ | \$ | \$ |
| <u>4.3.6</u> Instrumentation for RCAF flight test program. | 50,000 | 31,500 | 81,500 |
| (a) Design and specification of airframe sensing and airborne data recording instrumentation. | | | |
| (b) Design of instrumentation installation including the manufacture of special parts for mounting, and installation, check-out and calibration of instrumentation. | | | |
| <u>4.4.1</u> Planning and conduct of the Avro flight test program including: | 600,000 | 210,000 | 810,000 |
| (a) Detail planning of test programs. | | | |
| (b) Specification of required instrumentation for specific flights. | | | |
| (c) Recording and reduction of flight test data. | | | |
| (d) Pre-flight testing | | | |
| (e) Provision of flight crews. | | | |
| (f) Briefing and debriefing of flight crews. | | | |
| (g) Supply of flight test data to Orenda Engines Limited. | | | |
| <u>4.4.2</u> Maintenance and operation at Malton by Avro of aircraft 25201 through 25214 together with two Sabre 6 and one CF-100 Mk.5 chase aircraft. This shall include: | 1,400,000 | 525,000 | 1,925,000 |
| (a) Maintenance and operation of MA-1 electronic system, Genie rockets and Falcon missiles. | | | |
| (b) Supply of fuel and oil. | | | |
| (c) Procurement of maintenance assistance from sub-contractors other than Hughes Aircraft Company. | | | |
| (d) Support to RCAF Phase 2 program on one Arrow 1 aircraft. | | | |
| (For procurement of HAC technical assistance see 13.A) | | | |

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| | Oct.1/Mar.31 1960/1961 | 1961/1962 | TOTAL |
|---|---------------------------|-----------|---------|
| <u>4.5.2</u> Conduct of an aircraft/FCS/weapon development program at a base to be designated by the RCAF on three Arrow 2 aircraft equipped with Genie/Falcon weapon packs including: | 600,000 | 315,000 | 915,000 |
| (a) Maintenance and operation of three Arrow 2 aircraft for approximately nine months. | | | |
| (b) Provision of personnel to support the flight test program. | | | |
| (c) Provision of technical assistance from major sub-contractors. | | | |
| (d) Provision of GSE. | | | |
| (e) Provision of modifications to enable each of these aircraft to be used as targets when necessary. | | | |
| (f) Provision of mobile repair parties and modification kits to conduct necessary changes to these aircraft during the program. | | | |
| <u>4.5.3</u> Support of RCAF evaluation programs at a base to be designated by the RCAF on six Arrow 2 aircraft fitted with Genie/Falcon weapon packs including: | 550,000 | 262,500 | 812,500 |
| (a) Provision of personnel to assist the evaluation program. | | | |
| (b) Provision of technical assistance from major sub-contractors. | | | |
| (c) Provision of maintenance for airborne instrumentation. | | | |
| Note 1: Aircraft allocation to this program will be four to six aircraft, depending on need for attrition replacements. See aircraft allocation chart. | | | |
| Note 2: For provision of mobile repair and maintenance parties, service representatives and modification kits to support this operation see 3.3.3., 11.4 and 12.23. | | | |

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Oct.1/Mar.31 1960/1961 1961/1962 TOTAL

| | | | |
|---|--------------------|--------------------|--------------------|
| <u>6.4</u> Provision of services and materials for maintenance appraisal and the collection and preparation of maintenance and logistics data on the airframe and associated GSE. | 50,000 | 15,750 | 65,750 |
| <u>6.7</u> Preparation and publication of periodic Arrow program reports, as follows: (a) Quarterly physical report (b) Quarterly financial report (c) Monthly letter report. | 45,000 | 16,800 | 61,800 |
| <u>6.8</u> Provision of Engineering data and reports on request from the RCAF including: (a) Performance and weights reports. (b) Ground and flight test reports. (c) Wind tunnel, strength and system reports. | 35,000 | 21,000 | 56,000 |
| <u>6.11</u> Preparation and publication of special Weapon System Co-ordination reports. | 12,000 | - | 12,000 |
| <u>6.12</u> Preparation and maintenance of Arrow 2 systems brochures. (Work terminated). | 2,000 | - | 2,000 |
| <u>7.16</u> Study and analysis of technical problems with respect to GSM on request from the RCAF, and recommendations of solutions to these technical problems. | 30,000 | 21,000 | 51,000 |
| | <u>\$3,934,000</u> | <u>\$1,714,650</u> | <u>\$5,648,650</u> |