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CHASE AIRCRAFT FOR USE IN THE
ARROW FLIGHT TEST DEVELOPMENT PROGRAM

70/ENG. COMM/4

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BRANCH

JUN 8 1995

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J. H. PARKIN
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REPORT

CHASE AIRCRAFT FOR USE IN THE
ARROW FLIGHT DEVELOPMENT PROGRAM

70/ENG. COMM/4

December 2, 1957.

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INTRODUCTION

During the Arrow flight development program it will be necessary to accompany each Arrow aircraft by several chase aircraft. Such chase aircraft will perform the dual functions of obtaining additional test data and assisting, when necessary, the Arrow pilot during landing. The chase aircraft will visually observe the Arrow in flight, augmenting data gathered internally in the Arrow, and their crews will aid the pilot of the Arrow aircraft in returning his aircraft to base in case of any malfunction of, or damage to, any component.

After a thorough survey of all aircraft which could possibly be used in the "chase" role, it was found that the requirements could best be met by one CF-100 Mk. 5 and two Sabre 6 aircraft. These aircraft will be equipped with a UHF communication system by Avro Aircraft Limited Engineering Division.

It is intended that, as a rule, the chase aircraft will be flown by RCAF pilots, but that it will occasionally be necessary for Company pilots to fly them.

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STATEMENT OF WORK

The Avco Aircraft Limited, Engineering Division, will do the following work to equip the 3 chase aircraft with UHF systems and operate and maintain them during the Arrow flight test program:-

1. Provide services and materials, as required, to install an AN/ARC-34 system in the CF-100 MK 5 aircraft, including:
 - (a) Substitution of a control box in the cockpit.
 - (b) Substitution of transmitter-receiver units in the rear centre fuselage and provision of new mounting brackets.
 - (c) Necessary wiring changes.

2. Provide services and materials, as required, to install AN/ARC-34 systems in the two Sabre 6 aircraft, using RCAF supplied conversion kits.

3. Provide services and materials, as required, for the initial check-flight of the 3 aircraft after receipt of same from the RCAF.

4. Provide services and materials, as required, to operate and maintain the 3 aircraft, including:
 - (a) Incorporation of mandatory and essential modifications.
 - (b) Daily, pre-, and post-flight inspections.
 - (c) One 75-hour overhaul per aircraft.
 - (d) Provision of fuel, oil, and landing fees for not more than 7 hours average flying time per month per aircraft.
 - (e) Provision and installation of observation cameras.

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5. Provide services and materials, as required, to maintain the required ground support equipment, which is assumed to be supplied by the RCAF.
6. Provide hangar space for the aircraft.
7. Provide office facilities for RCAF crews, as required,
8. Provide services and materials, as required, to:
 - (a) Specify flight plans for the aircraft.
 - (b) Process photographic record obtained by the chase aircraft.
9. Provide
 - (a) flight engineers, when required.
 - (b) 2 maintenance engineers to attend an RCAF course on Sabre 6 maintenance.

The Test Pilot Division is assumed to provide pilots for the three aircraft for the initial check flights and as required during the test program.

RCAF Assistance

The RCAF will be requested to provide the following:

1. One CF-100 MK 5 aircraft.
2. Two Sabre 6 aircraft complete with modification kits for installation of AN/ARC-34.

NOTE: These aircraft should arrive at Malton not later than 1st December, 1957, should have recently undergone periodic inspection, and should be in condition to allow for immediate check flights by Avro pilots.

3. Three AH/ABC-3A installations. (These are already in stock at Avro for the Arrow flight test program).
4. Ground support equipment for the aircraft. (See appendix 'A')
5. An adequate supply of spares for the aircraft to ensure their maximum serviceability for the duration of the program.
6. A supply of required publications.
7. Services of pilots for the 3 aircraft as required for the duration of the program.
8. Provision of a training course in Sabre 6 maintenance for 2 maintenance engineers.

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The following items are considered necessary for maintenance of two Sabre 6 chase aircraft and are to be supplied to Avro not later than the aircraft.

| <u>PART NO.</u> | <u>ITEM</u> | <u>QUANTITY</u> |
|-------------------|---------------------------------|-----------------|
| 26CJ/HF23414-201 | Tow Bar | 1 |
| 26CJ/HF35319 | Tail Section Removal Dolly | 1 |
| 26CJ/E975 | Tail Section Removal Sling | 1 |
| 4G/1595 & 4G/1315 | Aircraft Jack 7½ Ton | 3 |
| 26CJ/HF22978-151 | Engine Dolly | 1 |
| 26CJ/CJ19693 | Rigging Board Aileron Travel | 1 |
| 26CJ/CH20588 | Rigging Board Flap Travel | 1 |
| 26CJ/CJ19836 | Rigging Board Rudder Travel | 1 |
| 26CJ/CJ19931 | Rigging Board Elevator Travel | 1 |
| HFA0070 | Engine Sling with Sabre Adaptor | 1 |
| 26CJ/172-58631 | Hand Hydraulic Pump | 1 |
| HF29524 | Key Fuselage Mating Alignment | 2 |
| 26CJ/E1696 | Fly Away Jacking & Tie Down Kit | 1 |
| 26CJ/HF23004 | Wheel Wrench | 1 |
| HFA2632 | Rigging Fixture Hor. Stab. | 1 |
| HF22437 | Wheel Chocks | 8 |
| HF29785 | Canopy Seal Guard | 2 |
| HFA2632 | Canopy Sling | 1 |
| ST28064 | Adaptor Drop Tank Wrench | 1 |
| MST39356 | Wrench Quick Disconnect | 1 |
| MST39357 | Wrench Quick Disconnect | 1 |
| HF13039-36 | Screen Nose Cover | 4 |
| 170-73071 | Intake Duct Plug | 2 |
| 170-73072 | Exhaust Cover | 2 |
| 170-73073 | Pitot Cover | 2 |
| GKT38397 | Jig Wing Twist | 1 |
| CKT38398 | Jig Wing Twist | 1 |

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