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**ARROW WEAPON SYSTEM
CO-ORDINATING CONTRACTOR
REPORT No. 5**

Interim Report on Training Requirements
Associate Contractors Personnel

UNLIMITED

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ARROW WEAPON SYSTEM
CO-ORDINATING CONTRACTOR

REPORT NO. 5

1 AUGUST 1958

INTERIM REPORT ON
TRAINING REQUIREMENTS
ASSOCIATE CONTRACTORS' PERSONNEL

ISSUED: *M. R. Stephens*
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SUMMARY

The Arrow Weapon System Associate Contractors' statements of requirements for personnel training have been reviewed by the AWSC Department.

In order to reduce the large number of differing requirements with differing completion dates to a manageable program, it is proposed that courses be conducted at three levels as summarized in Table 1. The third level may be integrated with initial RCAF personnel training. Levels are generally defined as:

1. Familiarization
2. Basic course with information on 1st and 2nd line maintenance.
3. Complete technical course.

The dates given are the period in which courses are to be given. The length of particular courses has not been determined.

This information is presented in preliminary form to inform the Associate Contractors of the following:

1. The approximate number of contractor personnel they will have to train.
2. The changes in dates proposed for some of the courses they have requested.

INTERIM REPORTTRAINING REQUIREMENTS - ASSOCIATE CONTRACTORS' PERSONNEL

The Arrow Weapon System Associate Contractors were asked to submit requirements for training under the headings of type of training, required date of completion, and the number of people involved. The replies are summarized in Table 2. RCA has indicated verbally that there may be additional requirements, so these figures should be regarded as subject to revision.

Problems arising in this connection are:

- (a) The large number of different courses requested, some differing widely and some differing only in small details.
- (b) Incompatibility in completion dates.
- (c) The question of whether training of Associate Contractors' personnel should be integrated with RCAF personnel training.
- (d) The location of the training schools.

These problems are being approached as follows:

With reference to (a) above, since it is obviously impossible to present individual courses to each of the 50 groups listed in Table 2, it is proposed to give training on each of Airframe, Astra, Sparrow and Iroquois at three levels as indicated in Table 3. The column "Personnel Attending" is given as a guide to the training level and is not intended to list all the possible classifications of people who may require training.



Referring to (b) and (c), in addition to the responsibility of coordinating Associate Contractors' training programs, Avro is required to initially conduct the RCAF ground conversion training program on the Arrow Weapon System. While it is very desirable in the interest of economy to integrate contractor and RCAF training, the required completion dates make complete paralleling impossible. It is proposed to compromise by presenting the 1st level of contractor training during the last quarter of 1958 and the first quarter of 1959, and the 2nd level during the first half of 1959. The 3rd level of contractor trainees and the first group of RCAF personnel could be combined during the latter half of 1959. A detail study will be under way shortly.

With reference to (d), the question of the location of training schools for contractor personnel will receive careful consideration. It would seem desirable to centralize the early contractor and RCAF training in the Toronto area as an interim measure until the RCAF training school in Camp Borden is available in early 1960. However, it will be necessary to consider the Associate Contractors' costs in maintaining instructors and students away from home, and in transporting and setting up training aids, before a decision can be made.

It should be noted that the Arrow Program Statement of Work (paras 8.1.8, 8.2.6 and 8.3.8) calls for on-the-job training only to be supplied by Avro to the Associate Contractors, and thus would have to be amended to provide for formal training.



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TABLE 1

TYPE OF COURSE	LEVEL	DATE	ESTIMATED NUMBER OF TRAINEES				TOTAL
			AVRO	ORENDA	RCA	CANADAIR	
<u>AIRFRAME</u>							
Aircrew	1	Oct 58 - Apr 59		4	8	7	19
Ground Crew							
General	1	Oct 58 - Apr 59		1	1	1	3
General	2	Jan - June 59	34				34
General	3	July - Dec 59		6		7	13
Electrical Systems	3	July - Dec 59		2			2
Damper	3	July - Dec 59	9				9
Damper (including AFCS and Navigation)	3	July - Dec 59	24				24
Instrumentation	3	July - Dec 59				2	<u>2</u>
							<u>106</u>
<u>ASTRA</u>							
General	1	Oct 58 - Apr 59	10			8	18
General	2	Jan - June 59	34			8	42
General	3	July - Dec 59	38	1			39
Fire Control and IFF	3	July - Dec 59	48				48
Telecom (Communications)	3	July - Dec 59	20				<u>20</u>
							<u>167</u>
<u>SPARROW</u>							
General	1	Oct 58 - Apr 59	8				8
General	2	Jan - June 59	31				31
General	3	July - Dec 59	50				<u>50</u>
							<u>89</u>
<u>IROQUOIS</u>							
General	1	Oct 58 - Apr 59	9				9
Installation and Engine Running	2	Jan - June 59	17				17
Maintenance General	2	Jan - June 59	30				30
	3	July - Dec 59	20				<u>20</u>
							<u>76</u>
			382	14	9	33	



TABLE 2
ASSOCIATE CONTRACTORS' PERSONNEL TRAINING REQUIREMENTS

NOTE

Dates given are course completion dates. When an asterisk appears after a date, it indicates that the date was not supplied by the associate contractor, and was estimated from the program requirements.

TYPE OF COURSE	AVRO					ORENDA	RCA	CANADAIK
	Flight Operations	Manuf'g	Eng.	Sales & Service	Quality Control			
<u>AIRFRAME</u>								
1. Pilot indoctrination and transition flight training						Apr 59 2	Dec 58 3	Jan 60* 4
2. Observer							Dec 58 5	Jan 60* 3
3. Observer - flight engineer						Apr 59 2		
4. Installation inspector							Dec 58 1	
5. Sub-foreman, airframe						Apr 59 1		
6. A/C mechanic, airframe						Apr 59 4		
7. Electricians						Apr 59 2		
8. Inspectors						Apr 59 2		
9. Damper (familiarization)				Mar 60 30				
10. Damper (detailed)				Mar 60 9				
11. Damper, installation and trouble shooting		Apr 59* 4						
12. Damper, detailed, including AFCS and navigation computer sub-systems of Astra.		Nov 59 6 Jan 60 4 Feb 60 4 Mar 60 2 Apr 60 2 May 60 2 June 60 4						
13. General coverage of aircraft maintenance								Jan 60* 8
14. Instrumentation								Jan 60* 2



TABLE 2 (Cont'd)

TYPE OF COURSE	AVRO					ORENDA	RCA	CANADAIR
	Flight Operations	Manuf'g	Eng.	Sales & Service	Quality Control			
<u>IROQUOIS</u>								
1. General Foreman			Mar 59 1					
2. Flight Service - General			Mar 59 2					
3. Sub-foreman			Mar 59 2					
4. Engine mechanics			Mar 59 4					
5. Engineers - Technical Design			Mar 59 1					
6. Engineers - Equipment Design			Mar 59 2					
7. Engineers - Flight Test			Mar 59 1					
8. Familiarization Course including 1st and 2nd line maintenance				Mar 60 30				
9. Complete course				Jan 59 8				
10. Briefing		Mar 59 8						
11. Engine running, installation etc.		June 59 6			June 59 11			
<u>ASTRA</u>								
1. Radio mechanic						Apr 59 1		
2. Operating instructions and check procedures	Mar 59* 4							Mar 60* 8
3. Familiarization (Including 1st and 2nd line maintenance)					Mar 60 32			Mar 60* 8
4. Complete course				Mar 60 8				
5. Briefing		Mar 59 5						



TABLE 2 (Cont'd)

TYPE OF COURSE	AVRO					ORENDA	RCA	CANADAIR
	Flight Operations	Manuf'g	Eng.	Sales & Service	Quality Control			
<u>ASTRA (Cont'd)</u>								
6. Fire Control System and IFF		{ Feb 60 8 Apr 60 8 May 60 8 June 60 12 July 60 12						
7. Telecom (Communications)		{ Nov 59 4 Jan 60 4 Feb 60 2 Mar 60 2 Apr 60 2 May 60 4 June 60 2						
8. Flight control and navigation (including Damper)		See Airframe Section Item 12						
9. General Foreman			Oct 58 1					
10. Radar flight service mechanics			{ Oct 58 4 July 59 8					
11. Foreman - radar			Oct 58 2					
12. Sub-foreman - radar			{ Oct 58 2 July 59 2					
13. Engineers - Technical Design			{ Oct 58 2 July 59 2					
14. Engineers - Flight Test			July 59 2					
15. Engineers - Equipment Design			July 59 2					
16. Lab. Technicians			July 59 2					



TABLE 2 (Cont'd)

TYPE OF COURSE	AVRO					ORENDA	RCA	CANADAIR
	Flight Operations	Manuf'g	Eng.	Sales & Service	Quality Control			
<u>ASTRA (Cont'd)</u>								
17. Inspector, Radio & Radar								July 59* 3
18. Service Analyst "A"					July 59* 1			
<u>SPARROW 2</u>								
1. Foreman, armament			Jan 59 1					
2. Fitter, armament			Jan 59 4					
3. Foreman, radar			Sept 58 1					
4. Radar mechanic "A"			Sept 58 3 Jan 59 3					
5. Familiarization, including 1st and 2nd line maintenance				Mar 60 31				
6. Complete course		June 59 7		Mar 60 7				
7. Briefing		Mar 59 8						
8. Inspector, Flight Service								June 59* 11
9. Inspector, Radio & Radar								June 59* 3
10. Inspector, Electrical Final								June 59* 9
11. Inspector, Armament								June 59* 1



TABLE 3

SUGGESTED CONTRACTORS' PERSONNEL TRAINING COURSES

TYPE OF COURSE	PERSONNEL ATTENDING
<u>AIRFRAME</u>	
1. Aircrew	
(a) Pilot indoctrination	Pilots
(b) Observer/flight engineers	Observers
2. Ground Crew	
(a) Familiarization Airframe and Airframe systems	Department heads, senior supervision, etc.
(b) General coverage of airframe, systems and maintenance	Foremen, service reps, etc. Note: this course may be a continuation of 2 (a).
(c) Complete courses (i) Airframe (ii) Electrical Systems (iii) Damper (iv) Instrumentation	Sub-foremen, service reps, airframe mechanics, electricians, inspectors.



TABLE 3 (Cont'd)

TYPE OF COURSE	PERSONNEL ATTENDING
<u>ASTRA</u>	
1. Familiarization	Department heads, senior supervision, etc.
2. Basic course, operation, maintenance	Supervision, pilots, observer equipment design engineers, service reps.
3. Complete course	Foremen, sub-foremen, systems engineers, radio mechanics, radar mechanics, service reps, inspectors. Note: this course could be arranged so that radio mechanics could drop out after completion of basic C & N sub-systems.
<u>SPARROW 2</u>	
1. Familiarization	Department heads, senior supervision, etc.
2. Basic course, maintenance	Supervision, service reps.
3. Complete course	Foremen, armament fitters, radar mechanics, inspectors, service reps.



TABLE 3 (Cont'd)

TYPE OF COURSE	PERSONNEL ATTENDING
<u>IROQUOIS</u>	
1. Familiarization	Department heads, senior supervision, etc.
2. Basic course (a) Installation and engine running (b) Maintenance	Service reps, inspectors, equipment design engineers, etc.
3. Complete course	Service reps, foremen, sub-foremen, engine mechanics, flight test engineers.



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