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CLASSIFICATION: SECRET

DATE: 15 JULY 58

REPORT NO. 9 (ISSUE 2)

ROYAL CANADIAN AIR FORCE
AIR MEMBER FOR TECHNICAL SERVICES
CHIEF OF AERONAUTICAL ENGINEERING
REPORT ON THE
STATUS OF THE ARROW WEAPON SYSTEM

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ROYAL CANADIAN AIR FORCE

AIR MEMBER FOR TECHNICAL SERVICES

CHIEF OF AERONAUTICAL ENGINEERING

REPORT ON THE

STATUS OF THE ARROW WEAPON SYSTEM

PREPARED BY AWS 4 STAFF

RECOMMENDED BY G/C H.R. Foottit

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FILE NUMBER S1038CN-180

(11)

P R E F A C E

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INTRODUCTION

- 1 This report is intended to fulfill the need for periodic progress reporting and guidance to project phasing with respect to certain aspects of the Arrow Weapon System Programme. Additionally, it is intended to indicate the existence and calendar timing of key decisions and documents necessary for successful implementation of this programme.
- 2 The information contained in the first issue (1 April 58) was reported essentially in its original form as obtained from various sources and consequently revealed certain incompatibilities. Since that time many of the incompatibilities have been resolved and the results are reflected in the contents of this report. Hence, it should be understood that Directorates are working to the schedules shown at the time of issue. All schedule amendments are passed through AAWS/AWS 4 who should be consulted regarding the currency of schedules shown.
- 3 The existence of two plans should be noted as indicated on page (5), "Arrow Aircraft Allocation Chart". The AVRoe schedule terminates with delivery of the 38th aircraft in Jan 61, whereas the RCAF planning base line terminates with delivery of the 38th aircraft to ADC in June 61. The gap between the two plans is representative of allowance for program slippages, adverse attrition, retrofit programs and delays in aircraft acceptance. Generally, the Arrow programs are being planned and implemented on the basis of the AVRoe schedule. However, RCAF personnel should recognize the possibility of slippage to the RCAF schedule. As an illustration, in this report the personnel requirements are scheduled to the RCAF planning base line. Also, in certain instances compromise is necessary between the two plans where an early design freeze date would result in extensive retrofit to equipment.

SUMMARY
OF KEY DECISIONS AND
DOCUMENTS REQUIRED WITHIN REPORTING PERIOD

D E C I S I O N S			D O C U M E N T S		
DUE DATE	I T E M	ACTION REQ'D BY	DUE DATE	I T E M	ACTION REQ'D BY
JULY	Resolve Allocation of Astra Sets (Ref. P.14 - Item 7)	AAWS	JULY	Canadair S of W (Sparrow 2 Mk 1) (Ref. P.18 - Item 1)	Darme AAWS
JULY	Contractual coverage for O.E.L., Canadair and RCA PRD Study (Ref. P.'s 18, 23 and 25).	AAWS	JULY	Issue of OFTT Contract (Ref. P.35 - Item 5)	CAE DDP
JULY	Determine Missile Training Aid Requirements. (Ref. P.45)	Darme DTA	AUG	Issue of AST (Airframe Contract) (Ref. P.37 - Item 6)	CAE DDP
JULY	Confirmation of Construction Requirements. (Ref. P.50 - Item 2)	CAE	AUG	Flight Test Policy - CAE Report. (Ref. P.8 - Item 3)	AAWS
AUG	Determine GSE Training Aids Requirements. (Ref. P.45)	AAWS DTA	SEPT	AAWS Operation - CAE Report. (Ref. P.8 - Item 10)	AAWS
AUG	Approval to proceed with Missile Improvements. (Ref. P.18)	AIR COUNCIL	SEPT	Finalize ECP Procedure. (Ref. P.8 - Item 11)	AAWS
AUG	Procurement of GSE for 37 A/C Program. (Ref. P.'s 21, 24)	AAWS	SEPT	Prepare 1959/60 Budget Estimates. (Ref. P.24 - Item 1)	AAWS
AUG	Air Transport Requirements for Cold Lake Operations. (Ref. P.29)	CAE CMat	NOV	Issue of AST (Missile) Contract (Ref. P.43 - Item 5)	CAE DDP
AUG	Supply Concept. (Ref. P.25 - Item 2)	CMat CAE			

★ Item Overdue Since Last Issue of Report.

NARRATIVEARROW WEAPON SYSTEM

- 1 Because of its late phasing relative to the other major components, the limiting component in development of the Arrow Weapon System is the Electronic System (ASTRA). Hence, subsequent to the initial issue of this report the contractors associated with the program were requested to define the composition of the Arrow Weapon System with a "proven" capability by Jan 61. The word "proven" implies flight testing of components to the point where major inconsistencies and errors in design have been eradicated.
- 2 A.V.Roe Report No. 1, "Initial Operational Arrow Weapon System", defined the weapon system capability in Jan 1961 as follows:
 - (a) An aircraft capability which is substantially in agreement with the interim performance required in accordance with Air Specs.
 - (b) A basic fire control capability in conjunction with Sparrow 2 Mk 1 missiles using manual attack methods.
 - (c) A dead reckoning navigation computer, with manual inputs, together with UHF communication and homing, intercomm, air to ground IFF and radio compass.

The electronic system described above has been termed the Complete Mission Manual Mode Systems (ASTRA 1A).
- 3 The contractors were requested to extend the scope of the original investigation to consider development of the complete weapon system. AVRoe Report No. 3, "Program leading to Complete Arrow W.S. Capability", is the result of this investigation and establishes the timing of "proven" components leading to the complete weapon system.

CONTINUED

- (a) Full Magnetron Power - Feb/Mar 61
- (b) Pilot Assist and Stable Platform - May/June 61
- (c) Quasi Passive Ranging - July/Aug 61
- (d) Infra Red - Sept/Oct 61
- (e) Data Link and AFCS - Feb/Mar 62

The fully proven electronic system has been termed the Complete Mission Automatic Mode System (ASTRA 1B).

- 4 The requirement for additional support to the contractors has resulted in the allocation of three Arrow A/C from Phase 6 trials to the contractors' portion of the 37 aircraft program. Based on further support (acquisition of two F101B a/c) there is basis for optimism that the "proven" capability of the complete weapon system will be achieved on schedule.

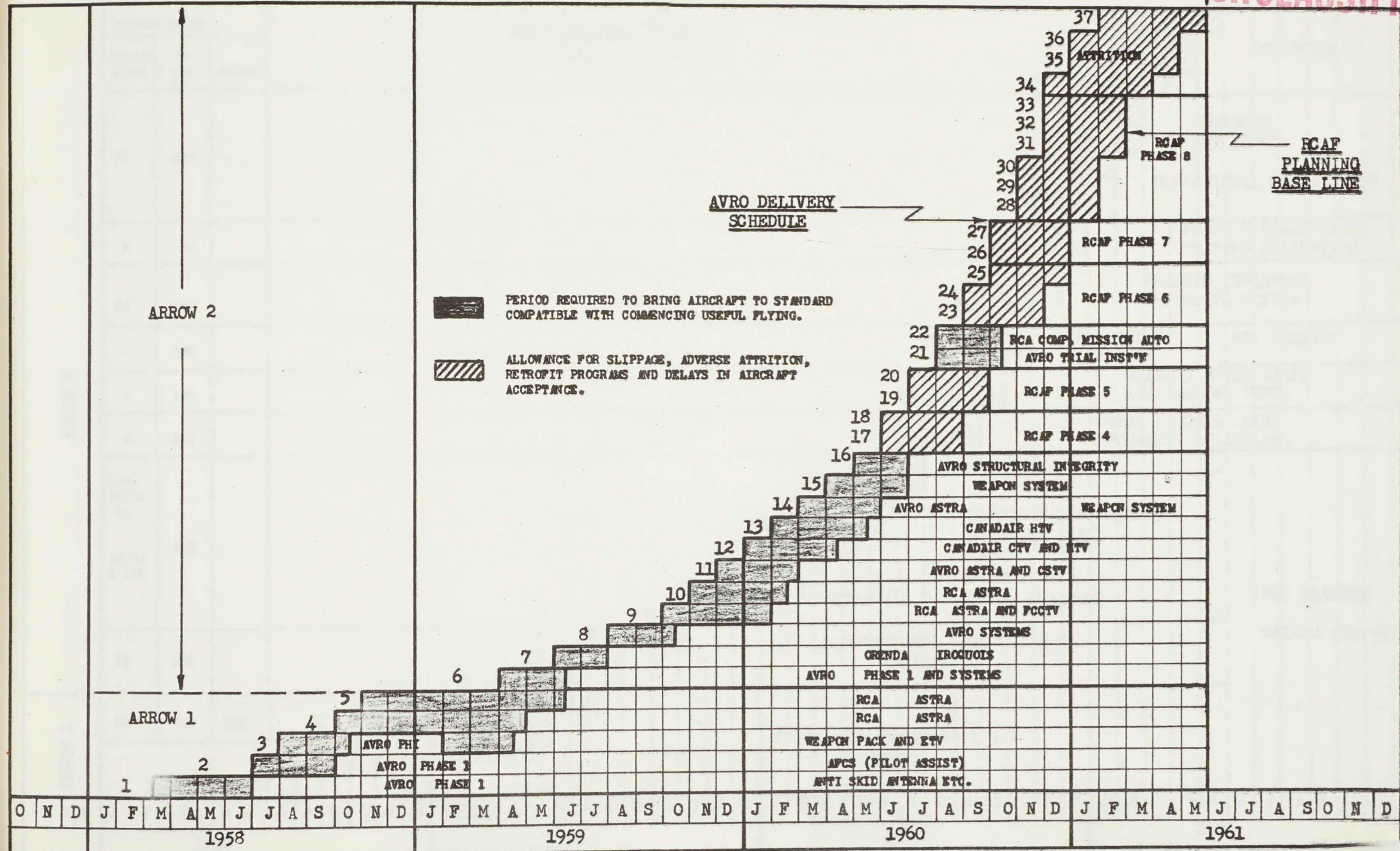
ARROW AIRCRAFT ALLOCATION CHART

DELIVERY TO ADC

PAGE 5

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ARROW FLYING TRIALS

SECRET
DATE: 15 July 58

DATE: 15 July 58

PROJECT PHASING

		1958												1959												1960												1961												
ITEM		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	REMARKS
ARROW 1 AND 2 AIRCRAFT DELIVERIES	SCH	1		1	1		1	1						1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	4	2	1									37 AIRCRAFT DELIVERIES BY 31 JAN 61			
	DEL	1		1																																														
ARROW TRIALS (STARTING DATES) ARROW I - PHASES 1 AND 2	SCH					X																																										MALTON - (NOTE) ANTICIPATE COMPLETION OF REPAIRS TO 25201 BY 1 OCT 58		
ARROW 2 - PHASES 1 AND 2	SCH																X																																MALTON	
ARROW 2 - PHASE 3	SCH																											M	G																				M - MALTON C - COLD LAKE	
ARROW 2 - PHASE 4	SCH																																																COLD LAKE - PERFORMANCE AND HANDLING	
ARROW 2 - PHASE 5	SCH																																																COLD LAKE - ALL WEATHER TESTS	
ARROW 2 - PHASE 6	SCH																																																UPLANDS - INTENSIVE FLYING	
ARROW 2 - PHASE 7	SCH																																																COLD LAKE - WEAPONS EVALUATION	
ARROW 2 - PHASE 8	SCH																																																UPLANDS - OPERATIONAL SUITABILITY	
DELIVERY ARROW 2 A/C 25238 TO ADC	SCH																																																	
MODEL SPECIFICATION ARROW 2 AIRFRAME	SCH					X																																											TO DESCRIBE A/C 25206	
MODEL SPECIFICATION ARROW 2 WEAPON SYSTEM	SCH																X																																TO DESCRIBE W.S. 25211	

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DATE: 15 July 58

ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

AAWS

DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
ITEM		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	AVRO STATEMENT OF WORK				X									AAWS	FINALIZATION OF NEGOTIATION WITH AVRO FOR INCLUSION OF RCAF TECHNICAL COMMENT
2	EXPANDED MASTER PHASING SCHEDULE				X									AVRO	TO INCLUDE CONTRACTORS' SCHEDULING OF A/C, ASTRA, ENGINES, MISSILES, PRO STUDIES ASTS AND GSE.
3	FLIGHT TEST POLICY				X									AAWS	PUBLICATION OF CAE REPORT.
4	INTEGRATED FLIGHT TEST PROGRAM				X									AVRO	AVRO PROPOSAL
5	DEFINITION OF CAPABILITY OF MIN. W.S. (ARROW WS CIRCA JAN 61)					X								AVRO	
6	DEFINITION OF CAPABILITY ARROW W.S. (CIRCA JAN 62)					X								AVRO	
7	PUBLICATION SPEC WSC 1				X									AAWS	DRAFT SPEC WSC 1 PUBLISHED APR 58. ISSUE 1 PREPARED FOR PRINTING.
8	SPEC WSC 1-2					X								AAWS	ISSUE 2 PREPARED FOR PRINTING
9	CAE REPORT NO. 6					X								AAWS	DESCRIBES ARROW W.S. COMMITTEE STRUCTURE
10	AAWS OPERATION					X								AAWS	PUBLICATION OF CAE REPORT
11	ECP PROCEDURE					X								AAWS	(1) FINALIZATION OF PROC 100-14 SUPPLEMENT APPLICABLE TO AVRO (2) FINALIZATION OF INTERNAL PROCEDURE
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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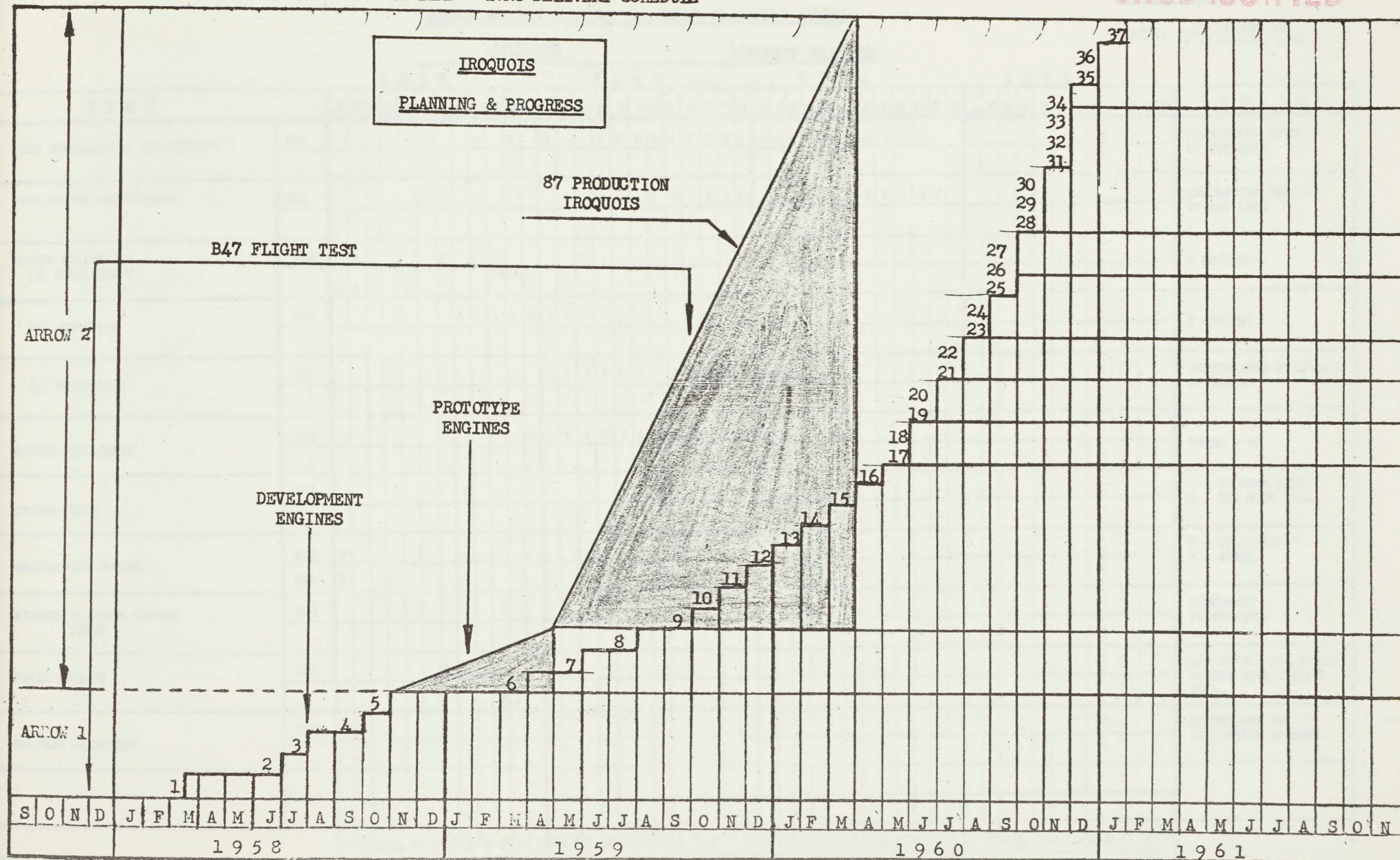
ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

AAWS

DECISION AND DOCUMENT REQUIREMENTS

I T E M	1 9 5 8						1 9 5 9						ACTION BY	R E M A R K S
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1 REPORT SPECIFICATION				X									AVRO	REPORT REQUIREMENTS APPLICABLE TO ALL CONTRACTORS.
2 PROGRAM PLAN AFTER 1961					X								AAWS	INITIAL STUDY
3 RECOVERY OF ARROW A/C FROM 37 A/C PROGRAM				X									AAWS	TO DETERMINE PHASING OF ARROW A/C INTO OPERATIONAL SQUADRONS FROM 37 A/C PROGRAM
4 SPEC WSC 1-3					X								AAWS AMC	
5														
6														
7														
8														
9														
10														
11														
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

BASELINE - AVRO DELIVERY SCHEDULE



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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

DATE: 15 July 58

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DECISION AND DOCUMENT REQUIREMENTS

I T E M	1 9 5 8						1 9 5 9						ACTION BY	R E M A R K S
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1 STATEMENT OF WORK				X									AWS	AAWS REVIEWED WITH ORENDA 2 JUL 58 AND OEL IS TO SUBMIT OFFICIAL COPIES THROUGH DDP TO AFHQ BY 21 JUL 58.
2 ASSESS SPECIAL TOOLS REQUIREMENT				X									AWS 3	REQUIRED TO ENABLE PROCUREMENT TO PROCEED
3 ASSESS TEST EQUIPMENT REQUIREMENT				X									AWS 3	REQUIRED TO ENABLE PROCUREMENT TO PROCEED.
4 ASSESS REQUIREMENTS FOR GHE				X									AWS 3	REQUIRED TO ENABLE PROCUREMENT TO PROCEED.
5 GSE PROCUREMENT ACTION					X								AWS/MP2	TARGET DATE IS DATE OF CD ISSUE
6 AFTERBURNER PROGRAM			T X			D X							AWS 3	T - TESTS COMMENCED AT NOBEL D - DECISION DATE AS TO A/B CONFIGURATION
7 ALTITUDE TUNNEL PROGRAM			T X			M X	C X						AWS 3	T - PROGRAM ESTABLISHED AT AEDC TULLAHOMA - 17 JUN 58 M - OEL TO SUBMIT MALTON TUNNEL PROGRAM FOR 1959. C - TEST TO BE COMPLETE 30 JAN 58 AT TULLAHOMA
8 MODEL SPECIFICATION			A X			B X		C X					AAWS	A - DATA SUBMITTED TO AVRO - OEL OFFICIAL SUBMISSION REQ'D. B - SPEC'N FOR IROQUOIS INSTALLED IN 11TH A/C C - SPEC'N TO DEFINE IROQUOIS INSTALLED IN 37TH A/C
9 NOISE SUPPRESSION								R X	D X				AWS 3	R - OEL REPORT ON PORTABLE SUPPRESSOR REQUIRED. D - DECISION FOR PROTOTYPE PROCUREMENT PROD'N DECISION TO BE MADE BY MAR 60.
10 VIBRATION ANALYSIS				X									AWS 3	VIBRATION ANALYSIS TO BE SUBMITTED AT THE SAME TIME OR WITHIN 2 WEEKS OF 50 HR PFRT FOR FLIGHT APPROVAL AND ACCEPTANCE OF ENGINE X115 PLUS
11 PRODUCTION DECISION								X					AAWS	AWS 4 TO DETERMINE PROGRAM FOR A/C'S 25238 AND BEYOND 12 MONTHS LEAD TIME REQUIRED.

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

ELECTRONIC SYSTEM (ASTRA) DECISION AND DOCUMENT REQUIREMENTS

I T E M		1 9 5 8						1 9 5 9						ACTION BY	REMARKS
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	ASTRA SET FOR ARROW A/C 25210			X										COMPLETED	NOW ALLOTTED.
2	SPECIFICATION FOR PREPRODUCTION MODEL				X									AWS 2 RCA	TO DESCRIBE COMPLETE MISSION AUTOMATIC MODE SYSTEM.
3	RCA COCKPIT LAYOUT REPORT				X									AWS 2 RCA	
4	RCA AIRBORENE RECORDERS REPORT				X									AWS 2 RCA	PART I OF STUDY.
5	AVAILABILITY OF F101B'S				X									AWS 2	DETERMINE TIMING OF INTRODUCTION INTO PROGRAM.
6	MODEL SPECIFICATION FOR PARTIAL ASTRA					X								RCA AWS 2	TO DESCRIBE PARTIAL ASTRA INSTALLATIONS.
7	ALLOCATION OF ASTRA SETS				X									AAWS	RESOLVE ALLOCATION OF ASTRA SETS TO AIRCRAFT, TRAINING AIDS, F101B'S AND TEST EQUIPMENT.
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

BASELINE - AVRO DELIVERY SCHEDULE

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SPARROW 2 MK 1

PROGRAM

COLD LAKE - ARROW EVALUATION

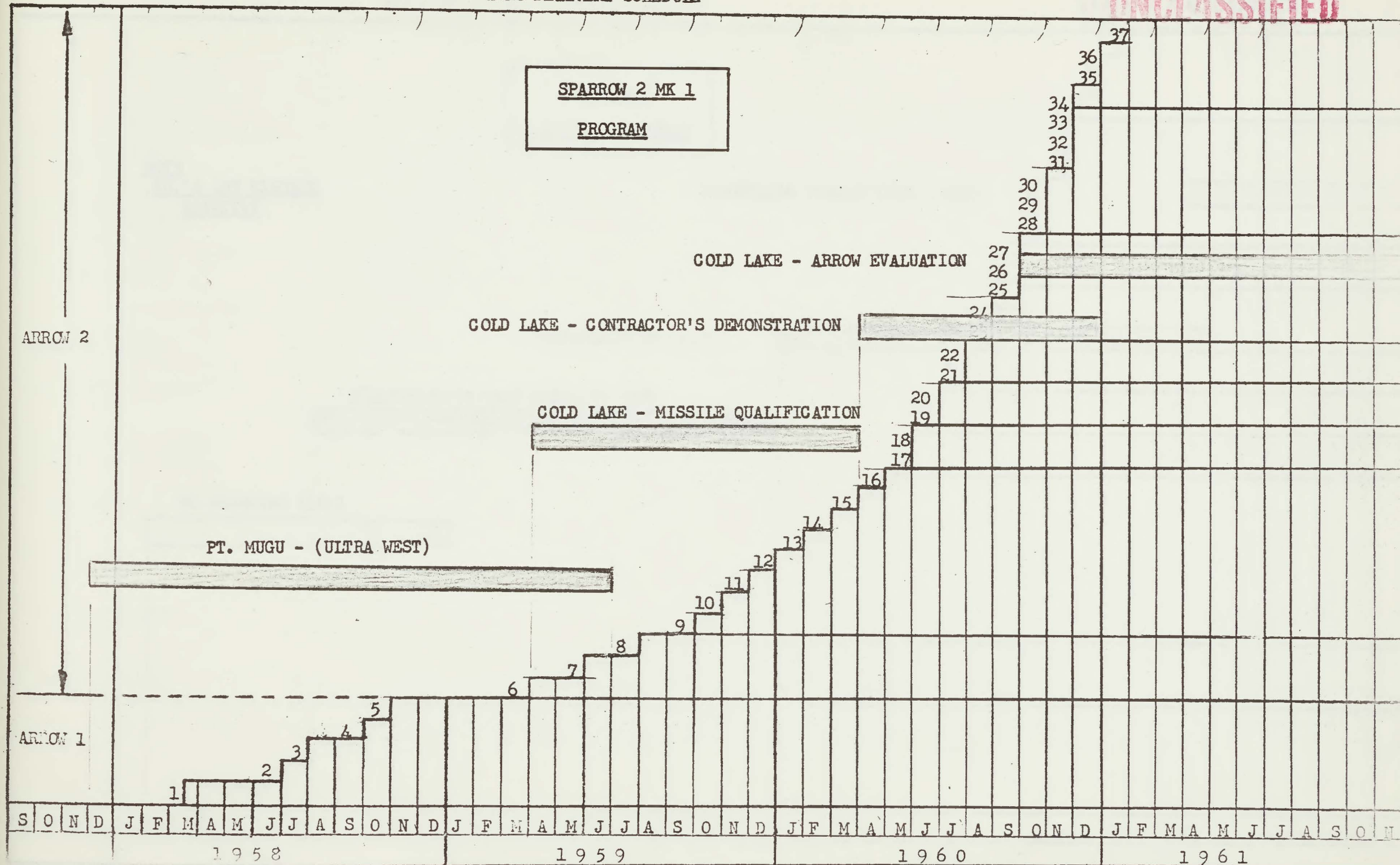
COLD LAKE - CONTRACTOR'S DEMONSTRATION

COLD LAKE - MISSILE QUALIFICATION

PT. MUGU - (ULTRA WEST)

ARROW 2

ARROW 1



BASELINE - AVRO DELIVERY SCHEDULE

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SPARROW 2
MISSILES DELIVERY

NOTE
NO. 'S ARE MISSILE
QUANTITY

PRODUCTION COMBAT STOCK (183)

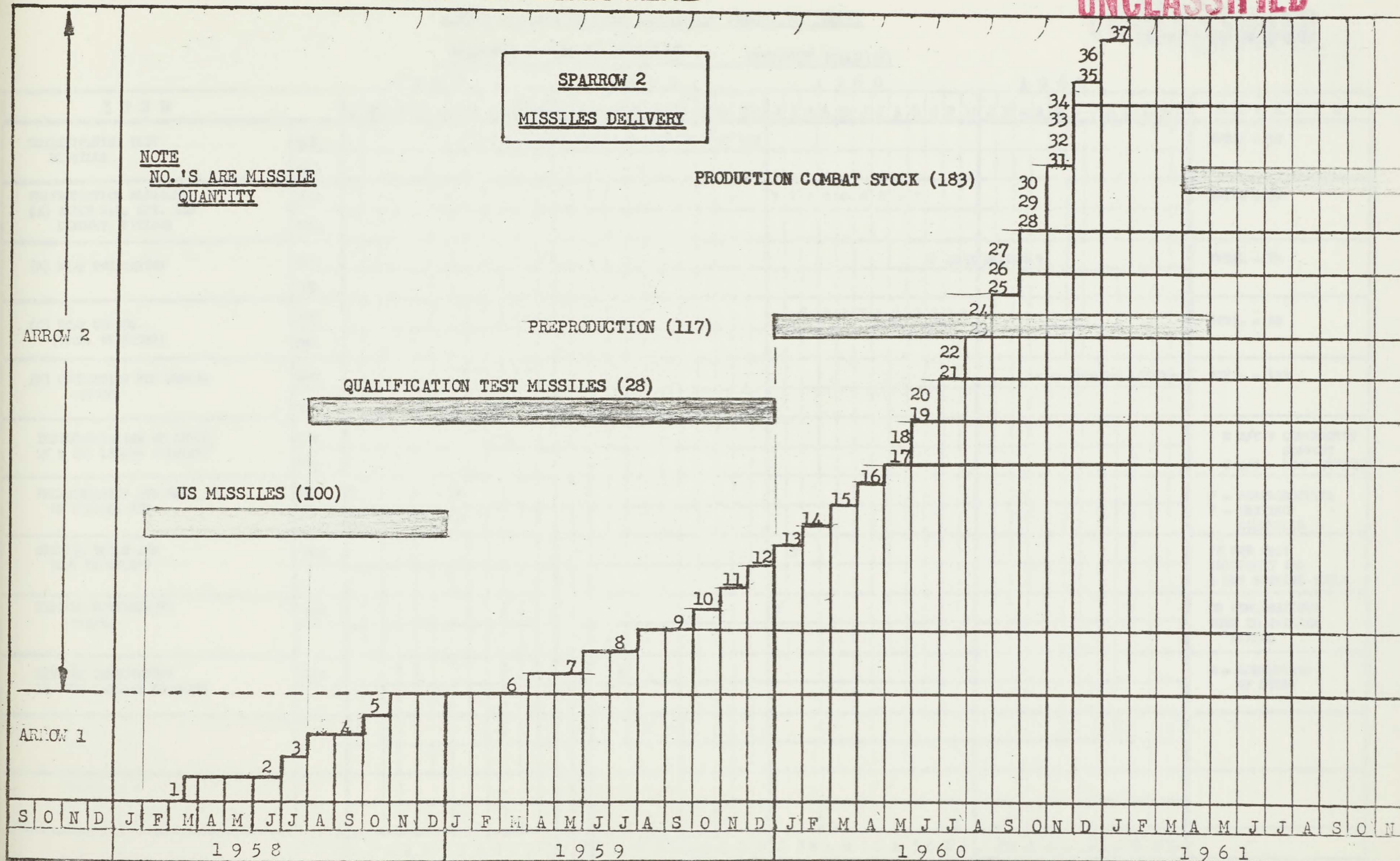
PREPRODUCTION (117)

QUALIFICATION TEST MISSILES (28)

US MISSILES (100)

ARROW 2

ARROW 1



ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

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SPARROW 2 (MK 1) MISSILE

PROJECT PHASING

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		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
QUALIFICATION TEST MISSILES	SCH								1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

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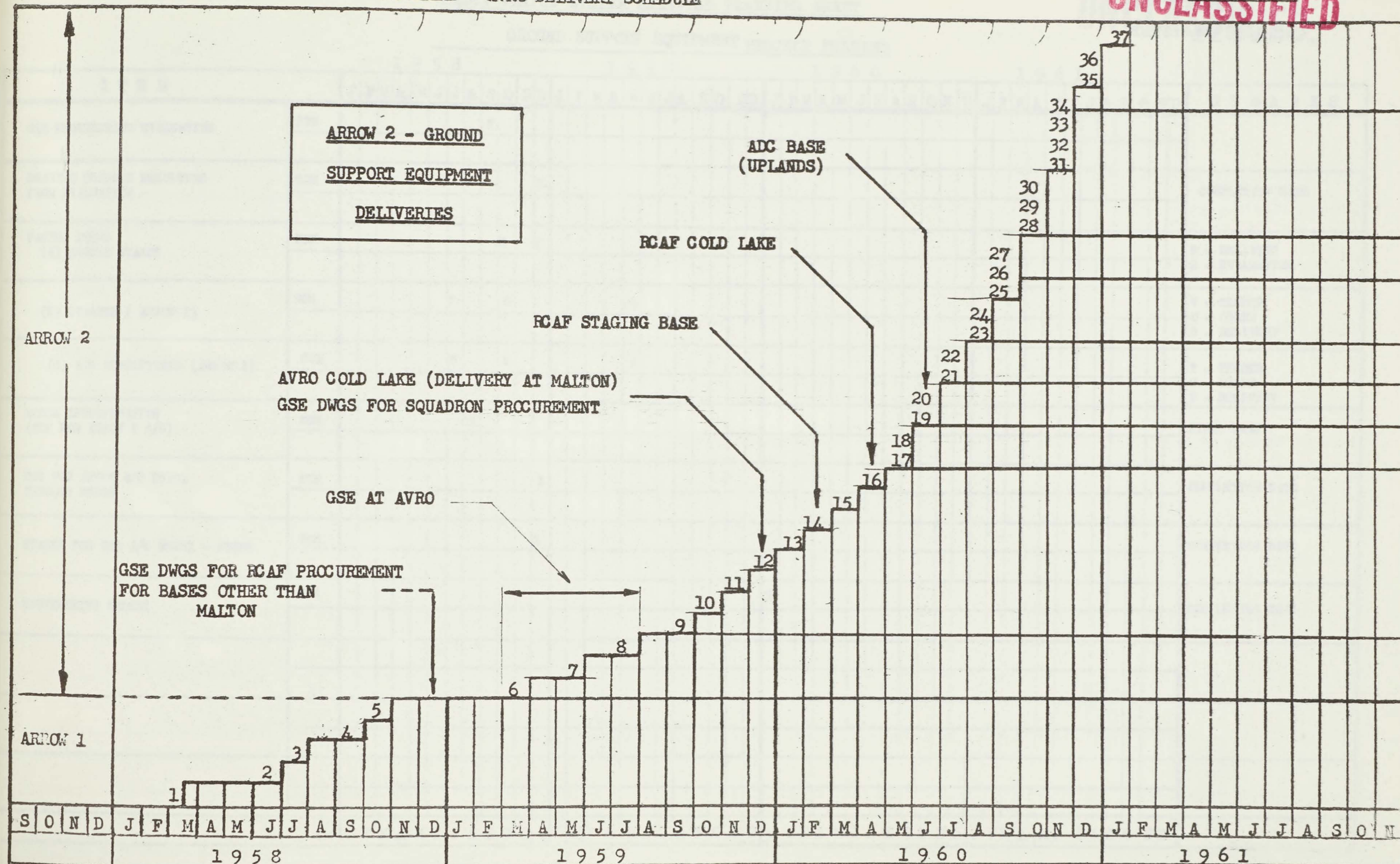
SPARROW 2 MK 1 MISSILE DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
I T E M		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	CANADAIR SPARROW 2 STATEMENT OF WORK				X									DARME AAWS	
2	LOGISTICS AND MAINTENANCE POLICY				X									DARME	REVISION OF POLICY APPLICABLE TO CP-100 A/C ISSUE OF 1 JUN 57.
3	MISSILE MODEL SPECIFICATION				X									CANADAIR DARME	MODEL SPECIFICATION TO DESCRIBE PRODUCTION MISSILE
4	AMTS DIRECTIVES FOR ENGINEERING TESTS AND EVALUATION			A B										COMPLETED	A - REISSUE OF 58/20 } APPLICABLE TO ULTRA WEST B - REISSUE OF 58/21 } PROGRAM
5	CONTRACTUAL COVERAGE FOR CANADAIR PRD STUDY				X									AAWS/MP2	
6	APPROVAL TO PROCEED WITH MISSILE IMPROVEMENTS				X									AIR COUNCIL	COVERS CONTINUOUS ROD WARHEAD AND GUIDANCE ACTIVATED FUSE. (OTHER IMPROVEMENTS ASSOCIATED WITH USN PROJECT 5)
7	CANADAIR S OF W FOR ULTRA WEST PROGRAM				X									CANADAIR DDP DARME	
8	SPECIAL TOOLS REQUIREMENT				X									DARME	DETERMINE REQUIREMENT FOR ADDITIONAL SETS TO SUPPORT SPARROW PROGRAM.
9	MISSILE MAINTENANCE				X									DARME DGT	RESOLVE SELECTION OF TRADESMEN, TYPE OF TRAINING, AND ESTABLISHMENTS.
10	CANADAIR PRD STUDY SCHEDULE				X									DARME	INFORMATION RE SCHEDULING AND DATA AVAILABILITY REQUIRED.
11	CANADAIR EO PUBLICATION SCHEDULE					X								CANADAIR DARME	SCHEDULE SHOULD EVOLVE FROM S OF W NEGOTIATIONS.
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

BASELINE - AVRO DELIVERY SCHEDULE

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEETUNCLASSIFIED
DATE: 15 JULY 58GROUND SUPPORT EQUIPMENT DECISION AND DOCUMENT REQUIREMENTS

I T E M		1 9 5 8						1 9 5 9						ACTION BY	REMARKS
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	TECHNICAL APPROVAL GSE LIST - ISSUE 10				X									AAWS AMC	ISSUE 10 COVERS GSE FOR 37 A/C PROGRAM
2	PROCUREMENT TO GSE LIST - ISSUE 10				X									AAWS AMC	
3	ORENDA GSE STUDY				X									AW/MP2	CONTRACTUAL COVERAGE.
4	GSE FOR AIRCRAFT 25209 THROUGH 25237				X									AAWS AVRO	NEGOTIATE DELIVERY DATES (SEE AVRO S OF W ITEM 10.3, PAGE 46) BROCHURE AD-51
5	SPARES FOR GSE AIRCRAFT 25209 - 25237				X									AAWS AVRO	NEGOTIATE DELIVERY DATES (SEE AVRO S OF W ITEM 10.3, PAGE 46) BROCHURE AD-51.
6	MINIMUM STANDARD EQUIPMENT FIXED											X		AAWS	WILL SET MINIMUM STANDARDS FOR PERFORMANCE, RELIABILITY, AND DESIGN.
7															
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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PERSONNEL REQUIREMENTS DATA PROJECT PHASING

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEETPERSONNEL REQUIREMENTS DATA DECISION AND DOCUMENT REQUIREMENTS

I T E M		1958						1959						ACTION BY	REMARKS
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	ISSUE OF CD				X									MP2	TO COVER PRD STUDIES AT ORENDA AND CANADAIR.
2	CONTRACTUAL COVERAGE				X									AWS/DDP	TO COVER PRD STUDIES AT RCA, ORENDA AND CANADAIR.
3															
4															
5															
6															
7															
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

FINANCIAL AND SUPPLY DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
I T E M		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	PREPARE 1959/60 BUDGET ESTIMATES					X								AWS/MP2	BASIC DATA BEING OBTAINED THROUGH DDP. DECISION REQUIRED ON CONTINUATION OF ARROW PROGRAMME.
2	MINISTERIAL REQUISITIONS				X	X			X					AWS/MP2	MR REQUIRED TO COMMIT BALANCE OF FUNDS APPROVED BY CABINET IN OCT 57 AND COMMIT 1959/60 FUNDS WHEN APPROVED.
3	CONTRACT DEMAND				X	X			X					AWS/MP2	TO DEFINE AND IMPLEMENT PROGRAMS REFERRED TO IN ITEM 2.
4	AMENDMENTS TO CONTRACTS					X	X			X				DDP	
5	PROCURE SPARES FOR PREPROD ASTRA				X				X					AMC	
6	PROCURE SPARES FOR IROQUOIS ENGINE					X								AMC	
7	PROCURE SPARES FOR AIRFRAME													AMC	PROGRESSIVE PROVISIONING IN PROGRESS
8	ESTABLISH REQUIREMENT FOR SPECIAL TOOLS AND TEST EQUIPMENT FOR IROQUOIS				X									AWS/MP2	
9	GSM REQUIREMENTS FOR INITIAL PRODUCTION ORDER					X								AWS 2 AWS/MP2 AMC DDP	
10	GROUND SUPPORT EQUIPMENT FOR 37 A/C PROGRAMME				X									AWS 3 AWS/MP2	APPROVAL OF AVRO RECOMMENDED LISTS REQUIRED
11	CONTRACT ACTION RELATED TO G.S.E.					X								DDP	
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEETFINANCIAL AND SUPPLYDECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
ITEM		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	CONTRACTUAL COVERAGE FOR CANADAIR PRD STUDY				X									AAWS/MP2	
2	SUPPLY CONCEPT				X									CAE CMAT	FINALIZATION OF SUPPLY CONCEPT.
3															
4															
5															
6															
7															
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

COLD LAKE

PROJECT PHASING

UNCLASSIFIED

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I T E M		1958												1959												1960												1961												R E M A R K S																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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S - SPARROW
A - ARROW
(SEE PAGES 49 & 51)

A - ARROW
(SEE PAGE 46)

DRONE RECOVERY

2 AIRCRAFT

2 AIRCRAFT

(SEE PAGE 17)

2 AIRCRAFT

(SEE PAGE 32)

S - SPARROW
A - ARROW
(SEE PAGE 23)

C - CONTRACTOR
A - AIRFORCE
ELLSWORTH AFB

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEETCOLD LAKE OPERATIONSDECISION AND DOCUMENT REQUIREMENTS

I T E M	1 9 5 8						1 9 5 9						A C T I O N B Y	R E M A R K S
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1 AIR TRANSPORT REQUIREMENTS				X									CAR CMAT	REF. MINUTES CPG 3/58 (FOR SPARROW AND ARROW TRIALS).
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

CLASSIFICATION:

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

COLD LAKE EVALUATION SYSTEM DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
ITEM		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	KINETHEODOLITES							X						AMC	INCORPORATION OF RADAR SLAVING.
2	KINETHEODOLITES													DRDP	STUDY RE EXTENSION TO INCORPORATE AUTO DATA EXTRACTION
3	DATA LINK GROUND ENVIRONMENT													DRDP	STUDY TO CONFIRM INSTALLATION BY REQUIRED DATE
4															
5															
6															
7															
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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1961

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

TARGET DRONES DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
ITEM		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	DRONE SELECTION					X								AAWS DAENG	SELECTION OF DRONE COMPATIBLE WITH ARROW TRIALS
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

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ARROW OFTT

PROJECT PHASING

ITEM		1958												1959												1960												1961												REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
TARGET DATE (IN SITU AT UPLANDS)	RQD																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

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DATE: 15 July 58

ARROW OFTTDECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
ITEM		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	STATEMENT OF REQUIREMENT	X												COMPLETED	MODIFIED BY DELETION OF MULTIPLE TARGETS IN APR 58
2	REQUIREMENT SPECIFICATION		X											DIEENG	SPECIFICATION APPROVED BY CME 10 APR 58
3	STATEMENT OF RCA OBJECTIVES			X										DIEENG	COMPLETED. DEFINES THE PROGRAM.
4	ISSUE OF CD			X										DRB	ISSUED (JUNE)
5	ISSUE OF CONTRACT				X									DDP	
6	SUPPLY OF TECHNICAL DATA				S X			C X						RCA DIEENG AAWS AVRO	REQUIRES URGENT ACTION. (AVRO S OF W SHOWS NO SCHEDULE). RCA REQUIRES CONTRACTUAL COVERAGE. S - DATA COMMENCED C - DATA COMPLETED
7	PRELIMINARY MODEL SPECIFICATION							X						CONTRACTOR	
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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ARROW-WEAPON SYSTEM CALENDAR PLANNING SHEET

AST (Airframe)

DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
ITEM		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	STATEMENT OF REQUIREMENT	X												DTA	COMPLETE
2	PROGRAM PLANNING	X												DIEENG	COMPLETE.
3	PREPARATION OF DESIGN STUDY	X												CONTRACTOR	COMPLETE.
4	REQUIREMENT SPECIFICATION			X										DIEENG	DRAFT SPECIFICATION COMPLETED
5	ISSUE OF CD	X												AMC	ALG TO CD462043 APPROVED 13 DEC 57
6	ISSUE OF CONTRACT				X									AAWS/DDP	
7	AIRFRAME AST SCHEDULE				X									AAWS AVRO	AVRO S OF W SHOWS AST AVAILABILITY 31 MAR 61. THIS IS INCOMPATIBLE WITH REQUIREMENT FOR AST IN SITU AT CAMP BORDEN BY 1 JAN 61.
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEETAST (Sectioned Engine)DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
ITEM		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	STATEMENT OF REQUIREMENT				X									DTA	GENERAL REQUIREMENT COMPLETE.
2	PROGRAM PLANNING				X									DTA DIEENG	A FIRM REQUIREMENT BEING COMPLETED BY DTA
3	PREPARATION OF PROPOSAL				X									CONTRACTOR	
4	REQUIREMENT SPECIFICATION					X								DIEENG	
5	ISSUE OF CD	X												AMC	AL 6 TO CD 462043 APPROVED 13 DEC 57
6	ISSUE OF CONTRACT					X								AAWS/DDP	
7															
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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1958

1959

1960

1961

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UNCLASSIFIEDDATE: 15 July 58ARROW WEAPON SYSTEM CALENDAR PLANNING SHEETAST (Electronics)DECISION AND DOCUMENT REQUIREMENTS

I T E M	1 9 5 8						1 9 5 9						ACTION BY	R E M A R K S
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1 STATEMENT OF REQUIREMENT	X												DTA	GENERAL REQUIREMENT COMPLETE.
2 PROGRAM PLANNING				X									DIEENG	FINAL REQUIREMENTS BEING COMPILED BY DTA
3 PREPARATION OF DESIGN STUDY	X												CONTRACTOR	PRELIMINARY DESIGN STUDY RECEIVED FROM RCA.
4 REQUIREMENT SPECIFICATION						X							DIEENG	
5 ISSUE OF CD	X												AMC	ALG TO CD 462043 APPROVED 13 DEC 57.
6 ISSUE OF CONTRACT							X						AAWS/DDP	
7 SCHEDULE COMPATIBILITY				X									AAWS	ENSURE COMPATIBILITY BETWEEN RCA SCHEDULE AND REQUIREMENT FOR ONE ELECTRONIC. AST IN SITU AT CAMP BORDEN BY 1 JAN 61.
8														
9														
10														
11														
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

AST (Missile)

PROJECT PHASING

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

AST (Missile)

DECISION AND DOCUMENT REQUIREMENTS

I T E M	1 9 5 8						1 9 5 9						A C T I O N B Y	R E M A R K S
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1 STATEMENT OF REQUIREMENT			X										DTA	GENERAL REQUIREMENT COMPLETE.
2 PROGRAMME PLANNING				X									DIEENG	FINAL REQUIREMENTS BEING COMPLETED BY DTA
3 REQUIREMENT SPECIFICATION					X								DIEENG	
4 ISSUE OF CD	X												AMC	AL 6 TO CD462043 - APPROVED 13 DEC 57.
5 ISSUE OF CONTRACT						X							AAWS/DDP	
6														
7														
8														
9														
10														
11														
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

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TRAINING AIDS

PROJECT PHASING

[illegible]

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

TRAINING AIDS

DECISION AND DOCUMENT REQUIREMENTS

I T E M	1 9 5 8						1 9 5 9						ACTION BY	R E M A R K S
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1 ASTRA SETS				X									AAWS CTRAIN	FIX NUMBERS OF ASTRA SETS REQUIRED FOR ASTRA TRAINING (RCA RECOMMEND 4 SETS, DTA HAS CALLED FOR TWO SETS).
2 MISSILE TRAINING AIDS				X									DTA	DETERMINE ADDITIONAL TRAINING AIDS REQUIRED (10 MISSILES PRESENTLY ALLOTTED)
3 GROUND SUPPORT EQUIPMENT TRAINING AIDS				X									AAWS CTRAIN	AAWS TO SUPPLY LIST OF EQUIPMENT REQUIRING TRAINING AIDS. DTA TO DESIGNATE TYPES AND QUANTITIES.
4 ENGINE RUN-UP FACILITY				X									AAWS CTRAIN	RESOLVE REQUIREMENT FOR ENGINE RUN-UP FACILITY AT CAMP BORDEN
5 ARROW AIRCRAFT FOR TRAINING					X								CAE CTRAIN	RESOLVE ALLOCATION AND TIMING OF A/C TO ARROW 2 CONFIGURATION FOR CAMP BORDEN
6 GHE REQUIREMENTS					X								AAWS CTRAIN	PROVISION FOR GHE COMPONENTS TO SUPPORT AIRCRAFT IN SITU AT CAMP BORDEN.
7														
8														
9														
10														
11														
	JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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PROJECT PHASING

		1958												1959												1960												1961												
ITEM		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	REMARKS
COMPLETION DATES SPARROW TRAINING	SCH				A																																												A - SPARROW EVAL. B - FTU SPARROW INSTRUCTORS	
	NO'S				19																																													
DRONE SERVICING	SCH								A																																								A - SPARROW B - ARROW	
	NO'S								25																																									
COLD LAKE RANGE FACILITIES	SCH								X																																								SPARROW TRIALS AND ARROW EVAL.	
	NO'S								32																																									
TELEMETERING EQUIP.	SCH								X																																								REQ'D FOR AIRBORNE INST LABORATORY	
	NO'S								12																																									
AIRBORNE DATA ACQUISITION SYSTEM	SCH																																																AUGMENT AIRBORNE INST. LAB FOR ARROW TRIALS	
	NO'S																																																	
ARROW GCTU STAFF	SCH												X																																				INSTRUCTORS FOR ARROW GROUND CONVERSION TRAINING UNIT	
	NO'S																																																	
ARROW ELECTRONIC SYS.	SCH																																																A - PHASE 3 SUPPORT B - AUGMENT ARROW EVAL.	
	NO'S																																																	
ARROW 2 ENG., AIRFRAME, GSE MAINTENANCE	SCH																																																A - PHASE 3 SUPPORT B - AUGMENT ARROW TRIALS	
	NO'S																																																	
ARROW 2 MAINTENANCE	SCH																																																ALL TRAINING EXCEPT ASTRA BY FEB 60 - FOR ADC OPS PROV. UNIT.	
	NO'S																																																	
AIRCREW OPS PROVING UNIT	SCH																																																A - 6 PILOTS B - 6 PILOTS - 6 OBS/AI	
	NO'S																																																	

ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

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IN-SERVICE TRAINING COURSES PROJECT PHASING

DATE: 15 JULY 58

ITEM		1958												1959												1960												1961												REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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TOTAL
369
TECHS

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ARROW WEAPON SYSTEM CALENDAR PLANNING SHEET

TRAINING

DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
ITEM		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	SITE SELECTION - ARROW GROUND TRAINING			X										COMPLETED	CAMP BORDEN SELECTED
2	SELECTION OF TRADE FOR AFCS & NAV. SYS.			X										COMPLETED	EXTENSION OF I TECH. TRAINING
3	ASTRA TRADE INFORMATION			A		B								RCA AWS 2	(A) PRELIMINARY RCA REPORT AR 27 RECEIVED. (B) SECOND RCA TRAINING REPORT
4	SELECTION OF TRAINING MANAGEMENT CONTRACTOR			X										CTRAIN AWS	AVRO SELECTED TO BE TRAINING AGENCY FOR ARROW TRAINING
5															
6															
7															
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

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CONSTRUCTION DECISION AND DOCUMENT REQUIREMENTS

		1958						1959						ACTION BY	REMARKS
I T E M		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		
1	STUDY RE SPACE REQUIREMENTS (UPLANDS)				X									ADC	STUDY TO DETERMINE SPACE ALLOCATION AND ADDITIONAL SPACE REQUIREMENTS TO SUPPORT PHASES 6 AND 8.
2	CONFIRMATION OF CONSTRUCTION REQUIREMENTS				X									CAE COPS CCE	TO CONFIRM THAT ITEMS LISTED ON NEXT PAGE MEET SPACE REQUIREMENTS
3	SITING OF CONSTRUCTION PROPOSALS				X									CCE ADC	FOLLOW-UP TO ITEM 2 AFTER FIRM AGREEMENT REACHED ON REQUIREMENTS.
4	COMMENCEMENT OF DESIGN				X									CCE	DESIGN OF FIRM REQUIREMENTS.
5	FUNDING								X					CCE	APPLICABLE TO COLD LAKE AND UPLANDS BUILDING REQUIREMENTS.
6															
7															
8															
9															
10															
11															
		JF	MA	MJ	JA	SO	ND	JF	MA	MJ	JA	SO	ND		

ABRCW WEAPON SYSTEM CALENDAR PLANNING SHEET

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PROPOSED CONSTRUCTION

PROJECT PHASING

ITEM		1958												1959												1960												1961												REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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AAWS	10
DAEng	1
DIEEng	2
DMEng	1
DarmE	2
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DMP	1
DProgC	2
DMP/MP2	1
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DarchC	1
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RCAF PLANT REP. RCA	10
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