

ADDENDUM 1

**ANALYZED** ✓

TO PERIODIC PERFORMANCE REPORT NO. 14

PERFORMANCE OF THE ARROW 2  
- FERRY MISSIONS WITH ARMAMENT BAY FULL

~~SECRET~~

AUGUST 1958

Classification cancelled / changed to Unclassified  
By authority of AVRO Arrow Declassif. Board  
Date 28 Jul 87  
Signature *[Signature]*, Co-Chairperson  
Unit / Rank / Appointment DSIS 3

AIRCRAFT: ARROW 2  
REPORT NO: Addendum 1 to Periodic Performance Report No. 14

FILE NO: 72/PERF/26  
NO. OF SHEETS 7

TITLE: PERFORMANCE OF THE ARROW 2  
(Ferry Missions with armament bay fuel).

ANALYZED



PREPARED BY Performance Group *R.B.* DATE August 1958

RECOMMENDED FOR APPROVAL *[Signature]* DATE Aug/58

APPROVED *[Signature]* DATE Aug/58

APPROVED FOR RELEASE *[Signature]* DATE Aug/58

56960

8783718

Classification cancelled / changed to Unclassified

By authority of AVRO Arrow Declassif. Board

Date 28 Jul 87

Signature B. Buley, Co-Chairperson

Unit / Rank / Appointment DSIS 3



CIRCULATION LIST

COPIES TO:-

COPY No.

Messrs:	J.C.Floyd	1
	R.N.Lindley	2
	J.Chamberlin	3
	C.V.Lindow	4
	F.Brame	5
	R.Marshall	6
	M.D.Willer	7
	D.Rogers	8
	M.Pesando	9
	J.Scott	10
	J.Lucas	11
	S.Kwiatkowski	12
	A.Thomann	13
	A.Buley	14
	S.Whiteley	15
	J.Hodge	16
	D.N.Scard	17
	H.MacDougall	18
	J.Cohen	19
	W.B.McCarter	20
	T.Roberts	21
	R.Rose	22
	A.Crust for R.C.A.F. (12)	23 - 34
	Performance Group (3)	35 - 37
	Library	38



INDEX

PAGE No.

Summary	4
Table 1 - Loading and Performance	5
Table 2 - Ferry Mission ( no armament ) - ventral tank carried throughout	6
Table 3 - Ferry Mission ( no armament ) - ventral tank jettisoned when empty	7



SUMMARY

This Addendum gives Ferry range performance of the Arrow 2 when the missiles and weapon pack are replaced by a fuel pack containing 775 gallons. No tail plugs are considered, but the aircraft carries the standard 500 gallon ventral drop tank.

The net result of the additional internal fuel is an increase in ferry range of approx. 27% over the ferry range of the basic aircraft with ventral tank.

These data are presented in a separate addendum because this scheme is, at present, formally unapproved and cannot, therefore, be included in the basic Periodic Performance Report 14.

TABLE 1 - LOADING AND PERFORMANCEWeight

Operational weight empty	lb.	43,977
Normal max useable internal fuel	lb.	19,443
Armament bay fuel (775 galls. at 7.8 lb/gall.)	lb.	6,045
Maximum external fuel plus tank (500 gallons at 7.8 lb/gall. plus drop tank)	lb.	4,242
Maximum gross take-off weight	lb.	73,707

Performance

Ferry Mission (no armament)		
a) ventral tank carried throughout	range n.m.	1,653
b) ventral tank jettisoned when empty	range n.m.	1,735



ARROW 2

TABLE 2 - FERRY MISSION (NO ARMAMENT)

500 GALLONS OF FUEL IN EXTERNAL TANK - TANK CARRIED THROUGHOUT

775 GALLONS IN ARMAMENT PACK

CONDITION	DISTANCE N.M.	TIME MIN.	FUEL LB.	A/C WT. LB.
Start Weight	-	-	-	73707
Engine Start	-	.5	100	73607
Take-off to Unstick Max Thrust A/B Unlit	-	.37	225	73382
Acc. to 527 kts. at S.L. Max Thrust A/B Unlit	5.8	1.01	728	72654
Climb at 527 kts. to 30,000' Max Thrust A/B Unlit	32.4	3.72	1800	70854
Cruise Climb to 36,000' at M = .90	1614.3	185.6	23951	46903
Loiter Over Base at 36,000' at Max Endurance Speed		15.0	1530	45373
Descend to S.L at Idle Thrust		6.2	324	45049
Land with Reserves for 5 min. Loiter at S.L.	-	5.0	730	44319
TOTAL	1652.5	217.4	29388	

Fuel density 7.8 lb/gallon.

Classification cancelled / changed to Unclassified  
 By authority of AVRO Arrow Declassif. Board  
 Date 28 Jul 87  
 Signature [Signature] Co-Chairperson  
 Unit / Rank / Appointment DSIS 3



ARROW 2

TABLE 3 - FERRY MISSION (NO ARMAMENT)

775 GALLONS FUEL IN ARMAMENT PACK

500 GALLONS FUEL IN VENTRAL TANK - TANK JETTISONED

AT FUEL EXHAUSTION

CONDITION	DISTANCE N.M.	TIME MIN.	FUEL LB.	A/C WT. LB.
Start Weight	-	-	-	73707
Engine Start	-	.5	100	73607
Take-off to Unstick Max Thrust A/B Unlit	-	.37	225	73382
Acc. to 527 kts. at S.L. Max Thrust A/B Unlit	5.8	1.01	728	72654
Climb to 30,000 <sup>0</sup> Max Thrust A/B Unlit at 527 kts.	32.4	3.72	1800	70854
Cruise Climb to 36,000 <sup>0</sup> at M = .91	1696.4	194.07	23956	46556
Loiter Over Base at 36,000 <sup>0</sup> at Max Endurance Speed	-	15.0	1530	45026
Descend to S.L. at Idle Thrust	-	6.2	324	44702
Land with Reserves for 5 min. Loiter at S.L.	-	5.0	725	43977
TOTAL	1734.6	225.9	29388	

Fuel density 7.8 lb/gallon.



OLD-FANG  
3558  
MADE IN U.S.A.