

1.

Ref 23a. It was agreed at meeting B. defence Committee meeting 28 Mar 1944 that L.P.W.'s should be substituted for the suggested power winds. 29/3/44 Ref. Ops 6.c.

2.

Two copies of Encls 36a & b. forwarded to Col. Patterson. F.A. Office first U.S. Army, by request. 9/5/44 Ref. Ops 6.c.

3

Memo of Action Taken

The undersigned arranged with 21 Army groups that plan of ~~Secret~~ T.A.F. (Encl. 73a) would be published, excepting that provision for marking of cables on inner edge of funnels with streamers, would be ~~published~~ to First Army for control of their balloons

27 May 44

J.M. Morrow
Col., G.S.C.

4.

N 15217

SASO

At 97 above is the information you desire for the Air Ministry on disestablishment of Balloon Units. An extra copy of each is enclosed so that you can hand it to them. This was all done by telephone and will be confirmed by letter.

J.M. Morrow
Col., G.S.C.
Apr 6

25 Aug. 44

DECLASSIFIED
Authority NND 947020

B.A.S.O.

0.4

Reference Enclosure 96a, you will note from Enclosure 94a that answer which para 4, Enclosure 96a, indicates has not been forthcoming from these Headquarters was given to Ops 4, Air Ministry, this morning, in answer to Enclosure 95a. From the above it is seen that the "B" beach units cannot at present be disestablished nor can any definite date for disestablishment be stated since 21 Army Group requires them for such time as Beach maintenance is necessary.

2. Of the Port ~~Units~~ Units:

a. Three (992, 998 and 999) Squadrons manning 145 balloons were established for use in the American Sector but are not now required by them. Of these, 21 Army Group states that they require one (992) set up for Cherbourg since they now have the defense responsibility for that port.

b. Squadron (994), set up for Mulberry "A" in case that defense was later assumed by the British can be disestablished immediately.

c. They expect to require Flights (103)(15 balloons) and (120)(10 balloons) for defense of Caen but do not believe they will require Flight (108) (15 balloons) for Houffleur. They definitely require Squadron (997) (50 balloons) for Le Havre but cannot state definitely whether or not they will require Squadron (996)(50 balloons) at Rouen.

Rouen

3. To summarize:

a. Squadrons (P)(994, 998 and 999) can be disestablished immediately.

b. Squadrons (B)(974, 976 and 980) and Squadron (991)(B) together with Flight (104)(P) can be disestablished after Beach Maintenance becomes no longer necessary which is estimated by 21 Army Group to be approximately at D + 130 but no definite date can be set.

c. 21 Army Group also states that they may not require Squadron ⁹⁹⁶(P) at Rouen nor Flight (P)(108) at Houffleur but will not give definite answer at this date. I will be informed as quickly as Brig HUGHES gives definite decision on this matter.

4. Balloon Command is to later inform me of the Balloon Operators and Drivers M/T in each of these units which I will later furnish to Ops 4, Air Ministry, but I cannot, at this time, state the number made available to them by the disestablishments indicated in para 3, above.

N 15218

John
B. H. MORROW,
Colonel, GSC,
Ops 6.

25 August 1944

SASO given commences

is Unimproved on 26/8

request GIC, Haler, exec for Hardman (D/ops Taa)

Copy of this min on 22253.

DECLASSIFIED
Authority NND 947020

97b

LOOSE MINUTE

S. A. S. O.

Additional information which can be given to O.4., Air Ministry re their loose minute of 23 August.

	<u>Unit</u>	<u>Bal. Ops.</u>	<u>Drivers</u> <u>H. T.</u>
	Squadrons (B) 974	124	6
	976	124	6
	980	124	6
	991	129	7
	Squadrons (P) 992	85 67	6
✓	(A.H.) 999	82	10
	998	65	10
✓	Squadrons (P) 994	55	4
	(21 Army Gp) 996	85	4
	997	84	4
	Flights (P) 103	25	1
	(21 Army Gp) 104	37	1
	108	25	1
	120	16	1

From the above they can calculate the bodies made available to them, I cannot do so and get this to you in time.

S. H. MONROW
Colonel C. S. C.
Ops. 6.

N 15219

DECLASSIFIED
Authority NND 947020

D. of Ops. (T.A.C.)

(Copy to:- D.G.O. through D. of O. and D.D. of M. (1))

A paper is under consideration by the C.A.S. to extend the present Anti-Diver balloon barrage in two places. The first by 400 L.Z. type balloons and the second by a further 400.

2. In the event of phase I being approved we are faced with the problem of finding the following additional key personnel from outside the present resources of Balloon Command:-

Balloon Operators:- 1300
Drivers M/T :- 189

3. In the event of phase II being also approved these figures will rise to:-

Balloon Operators:- 3450
Drivers M/T :- 442

4. As you are aware we formed and transferred to 2nd T.A.F. certain "B" balloon units for the defences of the beaches in Normandy. This commitment was to have faded out on D + 90 day which is about 1st September, 1944. A.E.A.F. were asked by us on 1st August to consider the future of these units after that date. They in turn wrote G.O.C.-in-C., 21st Army Group on 4th August but no indication of an answer has yet been received by O.4.

The disestablishment of the "B" balloon units would release:-

Balloon Operators:- 501
Drivers M/T :- 25

5. You also have in No. 85 (Base) Group certain "P" balloon units which were formed for use at ports of embarkation in England and possibly later for service overseas.

These units have recently been deployed at the Eastern end of the Anti-Diver barrage but are being immediately withdrawn as they have proved unsatisfactory for this purpose and are being replaced by L.Z. balloons. The "P" balloon units are about to return to No. 6 Balloon Centre, Wythall, to await employment in their proper role.

In these units there are:-

Balloon Operators:- 728
Drivers M/T :- 50

6. In view of the present state of the war would you please consider as a matter of urgency the possibility of disestablishing either of these formations or both as the key personnel would be most valuable elsewhere. In the event of phase I being approved key personnel would have to be obtained by withdrawing ex balloon operators and M/T drivers from other Commands but if "B" and/or "P" balloon units, can be eliminated the requirements from other command would be reduced to:-

Trade	With elimination of "B" Units only	With elimination of "B" and "P" units
balloon operators	800	70
Drivers M/T	165	115

N 15220

Wing Commander

DECLASSIFIED
Authority NND 947020

O.4.
23.8.44

NOTES ON A MEETING HELD AT HEADQUARTERS NO. 85 (BASE) GROUP ON MONDAY 14 AUGUST, 1944, TO DISCUSS THE ORGANISATION OF THE BALLOON WING IN FRANCE.

Remarks and Action by:

1. The following were present:-

Presiding:-	G/Capt. F J. Taylor	D/AOA H.Q. 85 Group
	G/Capt H. Felcs	G/C Org "
	W/Cd J.L. Brown	Ops. II "
	W/Cd M.C. Maxwell	Ops. I "
	W/Cdr G.A. Usher	Balloon Commander 85 Group
	S/Ldr L.C. Lake	Balloon Staff Officer H.Q. A.E.A.F.
	S/Ldr H.C. Edenborough	Org. II H.Q. 85 Group
	F/Lt E.J. Wilson	P. II H.Q. 85 Group
	F/Lt. L.W. Recordon	Eq. Balloon H Q. 85 Group.

2. OBJECT

The object of the meeting was to decide upon (a) the most efficient and economical method for providing domestic administrative control of Nos. 974, 976 and 980 Balloon Squadrons.

(b) the composition and establishment of the Wing H.Q. bearing in mind its operational responsibilities for all Balloon units in the Base Area.

CONTRIBUTING FACTORS:

Units and Dispositions.

3.	974	Balloon Sqdn:-	COURSELLES
	976	" "	LION SUR MERE, OUISTREHAM
	980	" "	VER SUR MERE
	991 (P)	" "	ARROMANCHES
	104 (P)	" Flight	COMMES, Near PORT EN BESJIN

(103 (P) Balloon Flight at present at No. 6 Balloon Centre, Wythal, will be added at a later date)

Administrative Control

4. Of the above squadrons 974, 976, 980 are not established to be fully administratively self-supporting, and they have hitherto been dependant upon the Beach squadrons (which are now being disbanded) for administrative support.

5. No. 991 (P) Squadron and the two flights are administratively self-supporting

Mobility

6. Nos. 974, 976 and 980 squadrons are non-mobile and cannot be moved quickly

Operational control

7. It is essential that operational control of all Balloon units in the base area should be vested in a Wing Headquarters.

Alternative Courses

8. In the light of the factors stated in paras 4 to 7 above, two courses were considered for the control of the Balloon units, both of which visualised direct /cont'd...

N 15221

operational control by the Balloon Wing.

- (i) To augment the establishments of 974, 976, and 980 Squadrons, making them administratively independent so that they could deal directly with H. Q. 85 Group on all administrative matters.
- (ii) To add a small administrative nucleus to the Balloon Wing Headquarters so that it could administer Nos. 974, 976 and 980 Squadrons.

9. In view of all the circumstances it was agreed by all present that the second course would be the more efficient and economical.

DECISIONS

10. The following decisions were made subject to the ACC's approval:-

- (a) To submit the proposed establishment for the Wing H.Q. to Headquarters A.E.A.F. and Headquarters 2nd T.A.F. A slight strengthening of equipment staff of Nos. 974, 976 and 980 squadrons is also included (See App. "A") Org. III for action
- (b) That the policy of the Wing would be the operational control of all Balloon units in the base area, and the administrative control of Nos. 974, 976 and 980 Balloon Squadrons. All officers for information.
- (c) That No. 991 Balloon Squadron and any other administratively independent balloon units which may subsequently be concerned should have direct approach to H.Q. 85 Group on administrative matters. ditto
- (d) To ask H.Q. 2nd T.A.F. to supply the personnel as soon and as far as possible from the resources made available by the dissolution of the Beach Squadrons. S.P.S.O. for action
- (e) That the Balloon Wing must be located with No. 24 Sector

H. J. Van der ...
Group Captain
D/AOA

85G/S. 2001/26/ORE
15th August 1944.

Distribution A.O.C., A.O.A., S.A.S.O., OPS 2, G/C ORG., ORG. II, SPSO.,
Admin plans, EQ (Balloons) S/L Smithers (Air Staff Balloons)
Wing Commander Usher, Ops. Record Book (2 copies)

External Headquarters A.E.A.F. (For S/L Lake) (2 copies)
" 2nd T.A.F. (Rear)
" 2nd T.A.F. (Main)

No. 24 Sector

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Authority NND 947020

N 15222

APPENDIX "A" OF
 NOTES ON A MEETING HELD AT HEADQUARTERS NO. 85 (BASE)
 GROUP ON MONDAY 14 AUGUST, 1944, TO DISCUSS THE ORG-
 ANISATION OF THE BALLOON WING IN FRANCE

BALLOON WING HEADQUARTERS - PROPOSED ESTABLISHMENT.

	W/C.	S/L	F/Lt	F/O	Total
Officer Commanding (Balloon)	1				1
Ops Officer (Balloons)			1		1
Admin (A & S D)			1		1
Equipment			1		1
Medical			1		1
<hr/>					
TOTALS (OFFICERS)	1		4		5

	Sgt.	Cpl	AC	Total
Equipment Assist.	1		2	3
Med. (Nursing Orderly)		1	3	4
Clerk G.D.	1		1	2
Clerk P.A.		1	1	2
Armourer (Bomb)	1			1
D.M.T.			1	1
Motor Cyclist			2	2
Cooks			1	1
ACH(GD)			2	2
<hr/>				
TOTALS (AIRMEN)	3	2	13	18

VEHICLES	A.	VEHICLES	B.	
Vans 15 cwt:-	1	Vans 15 cwt:-		1
Motor Cycles:-	2	Jeeps:-		1
	<u>3</u>			<u>2</u>

ADDITION TO ESTABLISHMENT OF: 974, 976 and 980 SQUADRONS.

Equipment Assist:- 1A.C.

N 15223

JA

HEADQUARTERS, ALLIED EXPEDITIONARY AIR FORCE.
Royal Air Force, Kestrel Grove,
Hive Road, Bushey Heath,
Watford, Herts.

Ref: AEAF/TS. 22254/Ops. 6.

Date: 4th August, 1944.

Subject: 'B' Balloon Units.

To: G. O. C. -in-C. 21 Army Group.

When Mark VI Balloons for Beaches (Nos. 976, 974, 980 and 991 Squadrons of 240 Balloons in all) were provided by this Headquarters it was envisaged for planning purposes that the commitment would be for a duration of 90 days. This period expires on or about the 1st. September, 1944.

2. It is requested that consideration be given to the required duration of the present deployment as it stands, and to the possible future role of these Units should it be decided that they are not needed after D + 90 in defence of Beaches and Mulberry 'B'. This Headquarters should be informed of your decision as soon as possible so that any further provisioning action which may be necessary can be taken with Air Ministry.

For Senior Air Staff Officer,
Allied Expeditionary Air Force.

M H
M. N. MCKENNON,
Colonel A. C.
Chief of Operations.

Copies to: Air Ministry D. G. O.
Air Ministry E. 20
Second T. A. F. (Rear Echelon, Unbridge)
Balloon Command.

Internal: Ops. 7 (2 copies).

N 15224

HOLBORN 4.
TELEPHONE : Extn. 1095

All communications on the subject of his letter should be addressed to :-

THE UNDER-SECRETARY OF STATE,
AIR MINISTRY,

and the following number quoted :-
S. 99396/0.4.

YOUR REF.

AIR MINISTRY,
ARIEL HOUSE,
STRAND,
LONDON, W.C.2.

895

SECRET

A. E. A. F. H. O.
SECRET REGISTRY

16 August, 1944.

WITH AIR STAFF (13a)

RELEVANT FILE & LATEST TRANSIT

FILE NO. MS. 13296

TO ON

SECRET

Sir,

"B" Balloon Units.

I am directed to refer to your letter ABAP/MS.13296 dated 10th March, 1944, and to inform you that your requirements for beach balloon units which were planned to cover the period "D" + 90 days expires on or about 1st September, 1944, and to request your observations as to the future of these units.

2. Nos. 976, 974, 980 and 991 (Balloon) Squadrons with an I.E. of 240 Mark VI balloons are involved.

I am, Sir,
Your obedient Servant,

J. A. ...
for Air Vice Marshal
Director General of Organisation

13296

The Air Marshal Commanding
Headquarters,
Allied Expeditionary Air Force,
Kestrel Grove,
Hive Road,
Stanmore,
Middlesex.

(Copy to Balloon
Command
and E.20

N 15225

DECLASSIFIED
Authority NND 947020

82a

IMPORTANT
SECRET.
CYPHER MESSAGE.

WARNING. This cypher message must first be paraphrased if it is necessary to publish its text or to communicate it to persons outside British Government Services and Departments. Messages marked "O.T.P." are excepted from this rule.

FROM— SECOND TAF MAIN	Date 7 JULY	
To— HQ AEAFF (OPS 6)	Time of 0905	Receipt Despatch
REPEATED—	System TX	

AO 566 7JULY

Serial No. 14/7

UNTIL FURTHER NOTICE WATERBOURNE BALLOONS PROTECTING MULBERRY ~~XXXXXX~~ REPEAT
MULBERRY B WILL FLY 24 HOURS A DAY AT 1000 FEET REPEAT 1000 FEET REGARDLESS OF
CLOUD BASE

TOO 070800B

DECLASSIFIED
Authority NND 947020

ACTION COPY

ops 6



22254

*no action required
sch*

N 15226

AAH V PAK P
T AEAF

FROM ANCXF 1/1233
TO NCETFCA)
INFO AEAF, BALLOON COMMAND
CONFIDENTIAL BT

IT WAS AGREED WITH AEAF THAT THE PROVISION OF CRAFT FOR
THE SUPPLY AND REPLACEMENT OF RAF BALLOONS IN MULBERRY B
WOULD BE A NAVAL RESPONSIBILITY.
THE RAF WILL SUPPLY TWO CRAFT FOR THIS PURPOSE AS SOON AS
POSSIBLE BUT MEANWHILE EVERY EFFORT SHOULD BE MADE TO
MEET THE REQUIREMENTS OF THE SQUADRON COMMANDER RESPONSIBLE
FOR THE BALLOON BARRAGE OF MULBERRY B

BT 171233
TOD 1442 MB K
R1442/17 PARKER AR

DECLASSIFIED
Authority NND 947020

A-011
IMPORTANT

80A
679

CONFIDENTIAL



air

ACTION COPY

N 15227

*2016
22254*

SECRET.
CYPHER MESSAGE.

Top Secret

WARNING. This cypher message must first be paraphrased if it is necessary to publish its text or to communicate it to persons outside British Government Services and Departments. Messages marked "O.T.P." are excepted from this rule.

FROM—

V A Dover.

Date

3 June 44

TO—

A.N.C.X.F.

Receipt

Despatch

Time of

1440

REPEATED—

Hqrs. A.E.A.F.

System

MOST SECRET

DECLASSIFIED

Authority NND 947020

TOPSECRET.

Your 012223

Serial No. 75/3

Towed balloons in Operation TAXABLE cannot be close hauled,
O N Dover 153 Note 2 refers.

N 15228

TOO 031223 B

*Actioned by
Cawborne 1000*

Leh = 2 S.R. (AEAF)

mlw

(78 b)

SECRET. MOST SECRET
CYPHER MESSAGE.

WARNING. This is an unparaphrased version of a cypher message and the text must be first paraphrased if it is essential to communicate it to persons outside British Government Services. Messages marked "OTP" are excepted from this rule.

NOTE:—At certain Headquarters plain language copies of cypher messages may be handed unparaphrased to the U.S. Services, who will paraphrase if retransmitted or communicated outside the U.S. Services.

To— H.Q. A.E.A.F. (R) V.A. DOVER	Date 4 JUNE	
	Receipt	Despatch
FROM— A.N.C.X.F.	Time of	0556
	System	

Serial No. **40/4**.....

TOPSECRET.

V.A.A.
V.A. Dover 031223 and my 012223

In operation takable balloons will not be flown above 450 feet
Craft carrying balloons will not approach enemy coast closer
than seven miles. Request aircraft carrying out airborne operations
be briefed accordingly.

=032208B.

JEME

CYPHER MESSAGE

INFORMATION COPY TO

DATE

IMPORTANT

N 15229

2 SR AFAF

DECLASSIFIED
Authority NND 947020

original
of TS 628

29254

77a

TOP SECRET.

TO: AIG 501 20V
(R) 21st Army Group,
SHAEF, HQ. AEF.

FROM: ANCENT.

IMPORTANT.

Balloons flown from ships and craft are to be close
hailed to 100 feet when within the aircraft corridors during
the times that Airborne Forces are scheduled to pass.
Senior Officers present are to ensure that the order is complied
with by all shipping. O.N. 11 and O.N. 17 Appendix V
Table B refer.

D.T.G. ... 012223B June.
T.N. 207.

Orig. S.O. Air
Appd. COS.

SM to 21st Army Group (6 copies).

SEC COS A/SEC DCOS OPS(3) SO(Air) ABAFLO V Log ACOS(US) SEC(US)
CMAO WDO SIGS(5).

C in C Portsmouth G/P P/L OCM Rm.

DIRECT D/R SHAEF
HQAEAF.

N 15230

EST.

DECLASSIFIED
Authority NND 947020

HEADQUARTERS, ALLIED EXPEDITIONARY AIR FORCE,

Royal Air Force, Kestrel Grove,
Hive Road, Bushey Heath,
Watford, Herts.

REF: ARAF/TS.628/Ops 3.

SUBJECT: Operation "NEPTUNE". British Airborne Operation.

TO: A.N.C.X.F.

Reference is made to this Headquarters Letter ARAF/TS.628/Ops 3 dated 19th May, 1944 and to the plans for the employment of British Airborne Forces during the period D - 1/3 + 5.

2. It is understood that during Operation "BALLARD" (arrival over landing area at 2100 hours on D Day) and Operations "ROB ROY I, II, III etc. (night operations subsequent to D Day), balloons will be flying from Naval and merchant craft off the beaches to the West of the ORNE estuary.

3. As the British troop carrier aircraft engaged in these operations may be flying as low as 100 feet, it is requested that you will confirm that instructions have been given for all balloons flying from craft lying off sectors G, P, Q and R and near the line of passage delineated in Diagram No: 11/NAV: attached to the plan referred to above, to be flown at a height not exceeding 100 feet at the times that the troop carrier aircraft will be flying over the areas and routes in question.

For Senior Air Staff Officer,
Allied Expeditionary Air Force.

W. H. BISH, Jr.,
Brigadier General, U.S.A.
Chief of Operations.

Copies to:-

Adv. A.E.A.F.
H.Q. Airborne Troops (Main),
H.Q. 58 Group,
H.Q. 21 Army Group,
H.Q. 2nd T.A.F. (Main),
Ops.6(c) A.E.A.F.

N 15231

HEADQUARTERS, ALLIED EXPEDITIONARY AIR FORCE.

Royal Air Force, Kestrel Grove,
Hive Road, Bushey Heath,
Watford, Herts.

Ref : ARAF/TS.628/Ops.3. 30th May, 1944.
Subject : Operation "HE TUNE". British Airborne Operation.
To : Headquarters, 21 Army Group.

Reference is made to this Headquarters letter ARAF/
TS.628/Ops.3. dated 19th May, 1944 and to the plans for the
employment of British Airborne Forces during the period
D - 1/D + 5.

2. It is understood that during Operation "MALJARD"
(arrival over landing area at 2100 hours on D Day) and Operations
"ROB ROY I, II, III" etc (night operations subsequent to D Day)
balloons will be flying on land in the area West of the OISE
estuary.

3. As the British troop carrier aircraft engaged in these
operations may be flying as low as 100 feet, it is requested
that you will confirm that instructions have been given for all
balloons to be close-hauled at the times that the troop carrier
aircraft will be flying over the area in question, i.e. all
balloons in an area 6 miles West of the OISE estuary.

For Senior Air Staff Officer,
Allied Expeditionary Air Force.

J. H. Smith, Jr.
J. H. SMITH, JR.

Brigadier General, U.S.A.,
Chief of Operations.

Copies to:-

Adv. A.E.A.F.
H.Q. Airborne Troops (Main)
H.Q. 38 Group, A.N.C.X.F.
H.Q. 2nd T.A.F. (Main), Ops 6(c) A.E.A.F.

N 15232

74a

~~SECRET~~

Headquarters, Allied Expeditionary
Air Force.

TOP SECRET.

Royal Air Force,
Kestrel Grove,
Hive Road,
Bushey Heath,
WATFORD,
Herts.

Ref: ARAF/TS.22254/Ops.6.

30th May, 1944.

Balloon Armament - Operational & Functional Aspects
regarding employment in Offensive Operation.

Sir,

I have the honour to refer to your letter A.12-1/D.D.S.M.3.
dated 22nd April, 1944, copy of which was forwarded by this Headquarters
to 2nd T.A.F. This Headquarters' letter, ref: ARAF/TS.22254/Ops. 6. U.
dated 1st May, 1944 refers. 514
58A

It has now been decided after consideration by this Headquarters
and by Headquarters 2nd T.A.F. that no useful purpose would be served by the
attachment of an Air Ministry Balloon Armament Officer to 2nd T.A.F. in
the early stages of the assault. It is however suggested that a visit
by the Air Ministry expert after a few weeks would be advantageous, at
that time all necessary information could be given to him by Balloon
Staff Officer, 2nd T.A.F., who will have been on the spot since the
beginning.

The suggestion contained in your letter under reference is
appreciated by this Headquarters.

I have the honour to be,
Sir,
Your obedient Servant.

leh.
L. G. LAKE,
Squadron Leader,
Operations 6 U.

N 15233

For Air Commander-in-Chief,
Allied Expeditionary Air Force.

The Under Secretary of State,
Air Ministry (D.D.S.M.3).
LONDON, W.1.

DECLASSIFIED
Authority NND 947020

S/L. La... A.F.A.F.

73A

SECRET

Copy No.

100 ELL

SECOND TACTICAL AIR FORCE

AIR STAFF INSTRUCTIONS FOR OPERATION "OVERLORD"

INSTRUCTION NO. 21

REGULATIONS CONCERNING THE FLYING OF BARRAGE BALLOONS OVERSEAS

OBJECT

1. The object of this instruction is to prescribe the command, control and employment of barrage balloons engaged in operations in Western and North Western Europe.

DEFINITIONS

Air Force Commander

2. The term "Air Force Commander" applies in this memorandum to the commander of a Tactical Air Force or to subordinate commanders who are responsible for implementing the policies and decisions of the Tactical Air Force Commander. The term "Air Defence Commander" has been avoided, because it has different British and United States meanings.

Anti-aircraft defences

3. The co-ordinated defences of a designated area against air attack provided by one or more of the following elements - anti-aircraft artillery (as defined above), barrage balloons and anti-aircraft smoke screens.

Anti-aircraft Defence Commander

4. The anti-aircraft officer commanding the anti-aircraft defences of any designated area. In the U.S. Army he will invariably be the senior anti-aircraft commander in the area. In the British Army he may be the senior Heavy A.A. officer.

OPERATIONAL CONTROL OF BARRAGE BALLOONS.

5. Normally, the authority is vested in the Air Force Commander, when communication and other necessary facilities permit, to restrict the flying of Barrage Balloons. This authority will be exercised through a Group Control Centre/Sector Operations Room and an Anti-aircraft Operations Room.

6. Operational Control will be assumed automatically by the Sector Controller (as defined in A.S.I.O. No. 7) as soon as direct and reliable communications have been established between an anti-aircraft Operations Room and a Group Control Centre/Sector Operations Room. It will cease when these communications are severed or discontinued. The difficulties of establishing and maintaining direct communication in moving situations will normally preclude the extension of operational control into the forward areas.

N 15234

7. The Anti-aircraft Defence Commander will establish an Anti-aircraft Operations Room (A.A.O.R.) from which he will pass information regarding flights of friendly and enemy aircraft and from which he will control the ground elements of the local Air Defence System, including Barrage Balloons. If communications fail, and when other facilities, including early warning, are inadequate to co-ordinate fighter aircraft and A.A. artillery, the Anti-aircraft Defence Commander will assume complete responsibility for the control of Balloon Barrages in the local area for which he is responsible.

/EMPLOYMENT OF BARRAGE BALLOONS

DECLASSIFIED
Authority NND 947020

EMPLOYMENT OF BARRAGE BALLOONS

Types to be employed

8. Only British Mark VI and U.S. Very Low Altitude barrage balloons will be used in the initial stages of continental operations. The subsequent employment of higher altitude balloons will be subject to the approval of the Supreme Commander.

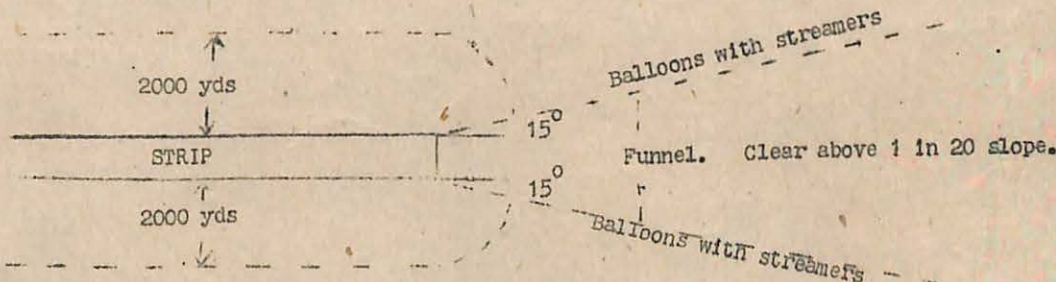
Method of Operation

9. Balloons will be deployed as early as operationally practicable in the defence of beaches and major ports and other principle vulnerable areas. When facilities permit, they will be operated singly in controlled barrages at their ruling operational height (i.e. two thousand feet).

Disposition of Balloons around R and R Strips, A.L.G.'s and Airfields

10. The flying of balloons is to be restricted in the following manner as soon as landing strips come into operation on the continent :-

- (i) No balloons are to be flown within 2,000 yards of any landing strip.
- (ii) There is to be an approach "funnel" at each end of each strip (as shown in the diagram below) in which there must be no obstruction from balloons above a 1 in 20 start line from rear end of strip. Balloon cables on the inner edges of this funnel are to be marked, as soon as practicable, with Streamers at approximately one hundred foot intervals up to five hundred feet, and at five hundred foot intervals above five hundred feet



- (iii) Balloons are NOT to be flown higher than five hundred feet below the lowest cloud base.

Balloons on Ships

11. Balloons may be flown under Naval arrangements by all ships up to a height of two thousand feet. Where ships are berthed inshore and are flying balloons, they are to be considered as part of the Air Defence System and must conform with the instruction given in paragraph 10 above, should this be necessary.

HOW TO LOWER BALLOONS INTERFERING WITH AIR OPERATIONS

12. It is the duty of the local E.L.S., A.L.G. or Airfield Commander to ensure that the restrictions (given in paragraph 10 above) are complied with within the area of the landing facilities under his command. Balloons which do not comply with these restrictions should be pulled down through application to the balloon unit commander concerned defined in paragraphs 5 - 7 above.

2TAF/30371/17/21/Ops
20 May, 1944.

Based on -

N 15235

S.H.A.E.F. Operation Memorandum No. 7

DECLASSIFIED
Authority NND 947020

USA 71A

From:- Main Headquarters, Second Tactical Air Force

To:- Headquarters, Allied Expeditionary Air Force,

Date:- 25th May, 1944

Ref:- 2TAF/30317/29/2/Ops

56a

Balloon Armament - Operational & Functional Aspects
regarding employment in Offensive Operation

1. With reference to your letter ABAF/TS.22254/Ops.6C dated 1st May, 1944 enclosing letter from D.S.M. on the above subject, it has been decided, after consideration, that no useful purpose would be served by the attachment of an Air Ministry Balloon Armament Officer to this Headquarters in the early stages of the assault.
2. It is suggested that a visit by the Air Ministry expert after a few weeks would best meet the case, when all the necessary information can be given to him by our Balloon Staff Officer, who will have been on the spot from the beginning.
3. It is requested that the Director of Servicing and Maintenance may be thanked for his suggestion and given the foregoing information.

for
Mr Reynolds etc
Air Vice Marshal
Senior Air Staff Officer
SECOND TACTICAL AIR FORCE

N 15236

4266 C
22254

70a

From: Main Headquarters 2nd T.A.F.

To : 83 Group (Main)
85 Group

TOP SECRET

Date: 21st May, 1944.

Ref: ZTAF/TS.2759/P.ad/30

ADMINISTRATION OF R.A.F. BEACH SQUADRONS, BEACH BALLOON SQUADRONS,
PORT BALLOON FLIGHTS BEFORE ARRIVAL OF H.Q. 2nd T.A.F. (MAIN).

1. On the back page is a list of the above units which will be on the Continent before the arrival of H.Q. 2nd T.A.F. (Main).

2. Operationally all BALLOON units will come under the control of the A.A. Defence Commander, and all Beach Squadrons will be controlled functionally by the Beach Sub-Area Commander to whom they are attached.

3. Prior to H.Q. 2nd T.A.F. Main arriving on the Continent and taking over their administration, all R.A.F. Beach Squadrons, Beach Balloon Squadrons and Port Balloon Flights will, from the time of their arrival on the Continent, come under the administrative control of H.Q. No. 83 Group, and they are to refer all administrative matters to H.Q. No. 83 Group. (But see para. 8 below).

4. The fundamental principle which is to determine the extent and nature of this administrative control is that H.Q. No. 83 Group is itself to deal with all administrative matters which require prompt action (and therefore cannot be referred to H.Q. 2nd T.A.F. in the U.K.) to maintain the morale and efficiency of these units.

5. Subject always to meeting the requirements of para. 4 above. It is intended to avoid burdening the Group Headquarters staff as far as possible with administrative matters concerning the units in question, which are of a longer term nature and which will not re-act unfavourably upon the morale or efficiency of the units before they can be referred to and be dealt with by H.Q. 2nd T.A.F. in the U.K. It should thus, for example, be possible in normal circumstances for H.Q. No. 83 Group, if they so desire, to refer the following matters to H.Q. 2nd T.A.F. in the U.K.

- (i) All personnel matters excluding Courts Martial and Immediate Awards;
- (ii) All matters connected with the basic and internal organisation of the Units.

6. While under the administrative control of H.Q. No. 83 Group, units with which this Memorandum is concerned, are to repeat casualty signals to H.Q. No. 83 Group.

7. No. 3 Beach Squadron R.A.F., is being held in reserve at R.A.F. Station OLD SARUM and will be drawn on to meet replacement requirements for key personnel.

8. It should be noted that Nos. 976, 974 and 980 R.A.F. Beach Balloon Squadrons are attached to and come under the administrative control of Nos. 1, 2 and 4 R.A.F. Beach Squadrons respectively.

[Signature]
Air Vice Marshal,
Air Officer i/c Administration,
2nd Tactical Air Force, R.A.F.

Copies to: 1, 2, 3 & 4 Beach Squadrons R.A.F.
991 R.A.F. Beach Balloon Squadron,
104, 103 Port Balloon Flights,
D/A.O.A. 2nd T.A.F. (Rear)
S/Ldr. Gates 2nd T.A.F. (Main).

N 15237

DECLASSIFIED
Authority NND 947020

TOP SECRET

LIST OF R.A.F. BEACH SQUADRONS, BEACH BALLOON
SQUADRONS AND PORT BALLOON FLIGHTS WHICH WILL BE ON
THE CONTINENT BEFORE THE ARRIVAL OF H.Q. 2nd T.A.F. (MAIN).

Beach Squadrons.

No. 1)
)
No. 2) Phased in by the Army and go in with the assault.
)
No. 4)

(Note: No. 3 in Reserve at OLD SARUM).

Beach Balloon Squadrons.

No. 974 (goes in with No. 2 Beach Squadron)
No. 976 (" " " " " ")
No. 980 (" " " " " ")
No. 991 For Mulberry B. Goes in on D + 4.

Port Balloon Flights.

No. 104 For YAPTON. Goes in on D + 6
No. 103 For CROSDALE. Goes in on D + 20.

N 15238

TOP SECRET

Office of Allied Naval Commander,
Expeditionary Force,
c/o Admiralty,
LONDON, S.W. 1.

No. X/0885/3

15th May, 1944.

MINUTES OF A MEETING HELD AT LIMBKILN AT 1030 ON MONDAY, MAY 15th
TO DISCUSS LOADING AND CARRIAGE OF R.A.F. BALLOONS IN LANDING CRAFT.

PRESENT

Commander G. BORRETT

Group Capt. E. ASHBURTON
Wing Cdr. J.W. PADMORE
Squadron Ldr. W.T. FORDE
Squadron Ldr. J.H. GATES
Squadron Ldr. L.C. LAKE
Lieut. Cdr. J.M. EVANS
Wing Cdr. KENNARD IOTT
Commander A.L. GRINERSON
Lieut. Cdr. M.A.G. AUSTIN
Captain F.M. LAYLAND
Lieut. C. NETHERCOT, R.N.V.R.
Major R.B. SOLOMON
Lt. Cdr. J.V. SANDARS, R.N.V.R.
Wing Cdr. E.M. ADLINGTON
Lt. Cdr. H. BELL-IRVING,
R.C.N.V.R.

Major J.J. MCARTHUR
Squadron Ldr. R.W.B. CHATMAN
Captain J. GOODALL

Representing
Allied Naval Commander Expeditionary Force
(in the Chair).

Balloon Command
30 Group
Balloon Command
2 Technical Air Force,
Allied Expeditionary Air Force.
Commodore Landing Craft Bases,
South Coast Ports
Commander-in-Chief, Portsmouth.
Naval Commander Eastern Task Force.
D.M.E.O. 50 (N) Division
Staff Officer (M) Force "G"
Force "J" and South Coast Ports
A.K.B.O. Portsmouth
K.B. Section, Admiralty
Force "S".

P.M.L.O. 3 Canadian Infantry Division
976 Squadron - representing 101 B. Sub Area.
P.M.L.O. 3 British Infantry Division.

The Chairman recapitulated the rules under which R.A.F. Balloons are to be carried in the Assault as follows:-
No ship or craft arriving at the lowering position before H - 15 minutes may carry a balloon of any sort. L.C.T. reaching the lowering position after H - 15 are each to fly one R.A.F. balloon and L.S.T. arriving after that time are to carry one R.A.F. Balloon in addition to their own naval balloon. Balloons in craft arriving on the first tide are not to be flown at more than one hundred feet.

2. It was then agreed that under these rules the following L.S.T. and L.C.T. arriving on D day would fly R.A.F. balloons.

Force J 24 L.C.T. loading at Stokes Bay
 22 L.S.T. loading at Southampton

Force G No L.C.T.
 22 L.S.T. loading at Southampton
 3 L.S.T.* loading at Gosport

* These three ships carry 21 Army Group Headquarters and their loading tables are the responsibility of 21 Army Group, not 50th Division.

Force S 53 L.C.T. loading at Stokes Bay, Gosport and Newhaven.

 17 L.S.T.* loading at Gosport
* The five other L.S.T. in Force "S" do not arrive until the third tide.

DECLASSIFIED
Authority NND 947020

TOP SECRET

MINUTES OF A MEETING HELD AT LIMBKILN AT 1030 ON MONDAY, MAY 15th
TO DISCUSS LOADING AND CARRIAGE OF R. A. F. BALLOONS IN LANDING CRAFT. (Cont.)
(Page 2 of X.F. X/0885/3 of 15th May, 1944).

Force L 40 L.C.T. loading at Tilbury Felixstowe } G. Beach
 20 L.S.T. loading at Tilbury Felixstowe }
 29 L.S.T. Tilbury } Junc. Beach
Total of 230 balloons on D day.

3. From the figures in paragraph 2 it was clear that neither squadron of balloons intended for GOLD and JUNO could be carried in L.C.T. and L.S.T. of Forces G and J. As the use of L.C.I.L. for the carriage of balloons has grave disadvantages from the R.A.F. point of view, it was agreed that the balance of 35 for GOLD and 14 for JUNO must be found in those L.S.T. and L.C.T. of Force L due to arrive on D day. As this presented many administrative problems, Allied Naval Commander Expeditionary Force was asked to make a signal to 21 Army Group asking them to make the necessary arrangements to implement this agreement.

4. It was pointed out that only the one hundred and eighty (180) balloons in the three squadrons for GOLD, SWORD and JUNO would be "manned". The remaining fifty (50) balloons would be "unmanned". There would thus be ten unmanned balloons in Force S. craft, and forty (40) in the L.S.T. and L.C.T. of Force L. It was agreed that it was entirely the responsibility of the R.A.F. to collect these unmanned balloons on the far shore, and that if by the time the ship or craft was due to return to the United Kingdom, the balloon had not been collected, the vessel would return with the balloon.

5. Some concern was expressed lest the R.A.F. balloon to be flown in L.S.T. might damage the radar equipment. It was pointed out that it was quite easy to move this balloon about the ship and according to the direction and strength of the wind, the balloon should be moved to a safer place. "Manned" balloons would be so moved by their crew, but in the case of "unmanned" balloons it was the Commanding Officer's responsibility to have it moved.

6. The question was raised as to the height at which naval balloons should be flown during the assembly. It was agreed that this was the responsibility of Commander-in-Chief, Portsmouth.

7. With reference to paragraph 2 it was agreed that it was necessary for at least nineteen (19) of the L.C.T. sailing from Newhaven to fly R.A.F. balloons, though it was hoped that means might be found whereby all craft sailing from there could do so. Should, however, it prove impossible to achieve even the figure of nineteen (19), it was agreed that all nineteen (19) balloon crews must be embarked and carried across.

8. The question of a postponement was raised, and it was agreed that if the troops were landed from L.C.T., the balloon crews should be landed with them, the balloons being looked after by the balloon ferry service. The difficulty of the balloon servicing personnel coming into contact with landed troops or crews was pointed out, but a S.M.A.E.F. ruling was produced which laid down in effect that the balloon servicing party would be given a special status in this respect, to enable them to carry out their work.

DECLASSIFIED
Authority NND 947020

N 15240

TOP SECRET

MINUTES OF A MEETING HELD AT LIMEKILN AT 1030 ON MONDAY, MAY 15th
TO DISCUSS LOADING AND CARRIAGE OF R.A.F. BALLOONS IN LANDING CRAFT (Cont.)
(Page 3 of X.F. No. X/0885/3 of 15th May, 1944).

9. It was confirmed that in the build up of R.A.F. balloons would be unmanned, and to distinguish as far as possible the craft carrying R.A.F. balloons from those carrying R.N. balloons, it was agreed that R.A.F. balloons should be hauled down to one hundred feet (100 ft.) on approaching the far shore.

10. Allied Naval Commander Expeditionary Force was asked to examine the proposed balloon flying restrictions which had already been circulated, as it was felt that some of the controls were likely to prevent the flying of balloons in places where the Navy might consider them essential. Allied Naval Commander Expeditionary Force agreed to complain if necessary.

John D. [Signature]

STAFF OFFICER LANDING CRAFT to
ALLIED NAVAL COMMANDER EXPEDITIONARY FORCE.

Since the meeting Force G has reported that they have phased back sixty three (63) L.C.T. and two (2) L.S.T. so that they can now carry sixty five (65) more R.A.F. balloons. These L.C.T. will load at Southampton. As a result it is only necessary for Force L to carry the balance of fourteen (14) balloons of Force J's squadron to JUMO. The remainder of Force L's lift will be unmanned balloons. Allied Naval Commander Expeditionary Force has amended his signal to 21 Army Group appropriately.

2. As a result of this later information from Force G, the figures in para. 2 above should be altered to read "Force G - 24 L.S.T. instead of 22, and 63 L.C.T. instead of nil, and the total becomes 295 instead of 230." In paragraph 4, for remaining 50 read remaining 115, divided as follows:- "S - 10 unmanned; L - 75 unmanned, G - 30 unmanned.

John D. [Signature]

STAFF OFFICER LANDING CRAFT to
ALLIED NAVAL COMMANDER EXPEDITIONARY FORCE.

N 15241

/Distribution

TOP SECRET.

MINUTES OF A MEETING HELD AT LIMEKILN AT 1030 ON MONDAY, MAY 15th
TO DISCUSS LOADING AND CARRIAGE OF R. A. F. BALLOONS IN LANDING CRAFT (Contd)
(Page 4 of X. F. No. X/0885/3 of 15th May, 1944.)

External Distribution.

Those present.
C. in C. Portsmouth.
A. E. A. F.,
Balloon Command.
2nd T. A. F.
N. C. E. T. F.
N. C. Force G.
N. C. Force J.
N. C. Force S.
N. C. Force L.
G. O. C. 3rd Canadian Division.
G. O. C. 50th Division.
G. O. C. 7th Armoured Division.
S. H. A. E. F.
21 Army Group.
2nd Army.
N. O. I. C. Newhaven.

Internal Distribution.

A. N. C. X. F.
C. O. S.
R. A. M. P.
D. C. O. S.
C. C. L. O.
S. O. O.
S. O. P. O.
A. S. O. P.
S. O. Air.
S. S. C.
S. O. Radar.
S. O. M. W.
A. N. A. O.
S. Sy. O.
S. O. L. C.

N 15242

DECLASSIFIED

Authority NND 947020

ops 6 r. 67a

TOP SECRET

**INCOMING MESSAGE
ETOUSA**

JSG

From: Flag Officer, Force L

Ref. No.: none

To : AEF

Dated: 161026B

Precedence: Routine

Rec'd : 161800B

Security: ~~SECRET~~ SECRET

TO: 21 Army Group Repeated AEF Balloon Command Second TAF
Second Army Flag Officer Force J ANCXF NCETF
ANCXF 151737

Topsec

3 LST(1) 26 LST(2) of Force L arrive Juno D day. Load
Tilbury PM D minus 4 to AM D minus 2. No Force L LCT for Juno

The making of an exact copy of this Message is
forbidden. Only such extracts as are absolutely
necessary will be made and marked SECRET.
This copy will be safeguarded with the greatest
care

N 15243

TOP SECRET

R E S T R I C T E D

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Authority NND 947020

66A.

TOP

SECRET

LOOSE MINUTE

OPS. 6

Reference loose minute at Encl. 64A, para. 5, on Wednesday, the 17th May I proceeded with Group Captain Lord Ashburton of Balloon Command to the South Coast, where we interviewed the P.M.L.O.'s of Forces "G", "J" and "S", and on Thursday, the 18th, to Cambridgeshire, where we interviewed the M.L.O. Force "L" and M.L.O. 51st Highland Division.

2. As a result of these contacts, everything which was obscure has now been cleared up and loading tables have been amended so that the full quota of 180 manned balloons is "phased in" to arrive on the Continent on D. Day. In addition to this, arrangements have been made for an approximate number of 50 unmanned balloons to proceed to replace immediate casualties.

3. Balloon Command are now in possession of complete amended loading tables as far as balloons are concerned, and are meeting Wing Commander B balloons, Second T.A.F. this morning to put ~~that~~ Headquarters fully in the picture.

4. It is appreciated that the work described above should normally have been carried out by Wing Commander Balloons, Headquarters Second T.A.F.; but as it was physically impossible for him to cover all his various commitments, I took it upon myself to render such assistance as I was able.

L. C. Lake

AEAF/S.22254/Ops. 6C.
19th May, 1944.

L. C. LAKE,
Squadron Leader, Ops. 6C.

N 15244

DECLASSIFIED
Authority NND 947020

~~SECRET~~

222-4 apr 6

65A

INCOMING MESSAGE

~~RESTRICTED~~
AEAF

JSG
From: ANCXF

Ref. No.: none

To : AEAFF

Dated: 151737B

Precedence: Routine

Rec'd : 152138B

Security: ~~RESTRICTED~~
Secret

TO: 21 ARMY GROUP REPEATED AEAFF BALLOON COMMAND SECOND TAF
CINC PORTSMOUTH NCETF FO FORCES S AND L COM FORCES G AND J
SECOND ARMY THIRD DIVISION THIRD CANADIAN DIVISION FIFTIETH
DIVISION SEVENTH ARMoured DIVISION SOUTH COAST PORTS

TOPSEC

1. Only 46 vessels in force J are available to carry RAF balloons to Juno on D day. Request you will make necessary arrangements for the remaining fourteen balloons of this Squadron to be carried in LCT or LST of force L going to Juno.

2. There will then be no need to carry balloons in any force in LCI(L) which craft RAF consider unsuitable for this purpose.

3. Request you will arrange for RAF balloons to be loaded on to the 3 LST of force G carrying army group headquarters

The making of an exact copy of this Message is forbidden. Only such extracts as are absolutely necessary will be made and marked SECRET. This copy will be safeguarded with the greatest care.

Handwritten signature

SECRET

N 15245

DECLASSIFIED
Authority NND 947020

LOOSE MINUTE.

(64a)

Ops.6.AEAF/S.22254/Ops.6C.

On the 15th May a Meeting was held at SOUTHWICK PARK called by Commander Borrett ANCXF to clear up finally the position as regards transporting beach balloons to the Continent. Representatives of Balloon Command, Forces 'G', 'J' and 'S' and P.M.L.O's were present.

2. It was immediately apparent that both the Army and the Naval Forces had to some extent misread the instruction which lays down that on D day balloons will be carried by all L.S.T. and L.C.T. reaching the lowering point after H-15. The main trouble appeared to be that no-one had realised the obvious necessity of using craft from Force 'L' to reinforce any deficiencies in Forces 'G', 'J' and 'S'.

3. On examination it was found that availability of balloon carrying L.S.T. and L.C.T. was as follows:-

Force 'G'	-	25
Force 'J'	-	46
Force 'S'	-	70

giving Force 'G' a deficiency of 35, Force 'J' a deficiency of 14 and Force 'S' a surplus of 10. 89 craft, however, are available to carry balloons in Force 'L', 29 of which land on 'J' beach and 60 on 'G' beach. It was necessary, therefore, that landing tables should be amended so that 35 manned balloons proceed from Force 'L' to the 'G' Sector and 14 manned balloons from Force 'L' to 'J' Sector. The additional 40 craft from Force 'L' to be equipped with unmanned balloons as will be the surplus 10 craft in Force 'S'.

4. Fears were expressed by S.M.L.O's that difficulties would be met in making the necessary modifications to landing tables. It was arranged therefore, that ANCXF should make a signal to 21 Army Group repeated to everyone else concerned emphasizing the urgency of authority being granted immediately for the alterations.

5. At a meeting during the afternoon at No. 12 Balloon Centre Titchfield, at which the Beach Squadron Commanders; Balloon Squadron Commanders; Wing Commander Fearn, Movements Second T.A.F; and Squadron Leader Gates, Balloons, Second T.A.F. were present, it was decided to suspend all movements of balloon personnel pending the required alterations to landing tables.

5. In order to expedite these operations I proceeded to SOUTHWICK again in the evening where I interviewed Major Berry, 21 Army Group, and thence to Second Army B.U.C.O. where I saw Lieutenant Colonel Harden who is passing the necessary authority for landing table amendments to

/S.M.L.O's.

N 15246

S.M.L.O's. I am proposing to visit the Portsmouth and Southampton areas again tomorrow with Group Captain Operations, Balloon Command, where we shall interview the Movements Officers of the Forces and make certain that the intentions of the ANCXF meeting described in para. 1 are being carried out.

L.C. Lake

L.C. LAKE.
Squadron Leader, R.A.F.
Operations 60.

16th May, 1944.

DECLASSIFIED

Authority NND 947020

**TOP
SECRET**

12A
59a

Copy No. 7

M/LD.004651/44

REFERENCE SHEET

TOP SECRET

From: Head of Military Branch II

To: Col. E.E. Johnson, R.M.	D. of L.D.
Group Capt. R.J. Montgomery-Moore, R.A.F.	D.D.O. (M.T.),
Group Capt. Lord Ashburton, R.A.F.	Air Ministry
" " J.N. Browne, R.A.F.	Balloon Command
Wing Commander E.N. Adlington, R.A.F.	" "
" " A.J. Pelham-Groom, R.A.F.	K. & B. Section
Squadron Leader L.C. Lake, R.A.F.	Admiralty
" " E.F. Tanner, R.A.F.	A.L.O., E.T.F.
Commander G. Borrett, R.N.	A.E.A.F.
" S.L.M. Vereker, R.N.	D.D.E. 3 (E.20)
" J.L.F. Manning, R.N.V.R.	Air Ministry
" R.W.A. Faulkner, R.N.R.	A.N.C.X.F.
Lt. Commander J.F. Sandars, R.N.V.R.	C. in C. Portsmouth
" " W.J. Quayle, R.N.V.R.	D. of L.D.
" " R.M.R. Hoare, R.N.	D.S.V.F.
Mr. R.C. Ashton	A.K.B.O. Portsmouth
	D.C.O.D.
	"
	D. of S. (M.T.)

Date: 4th May, 1944

..... Attached are the Minutes of the Meeting held in the Admiralty on 27th April, to discuss the function of R.A.F. Balloon Command and Naval Kite Balloon Section during 'OVERLORD'.

2. Receipt should be acknowledged to Military Branch, Admiralty, (Room 56).

N. Simpson

for HEAD OF MILITARY BRANCH II

N 15247

TOP
SECRET

TOP SECRET

MINUTES OF A MEETING HELD IN THE ADMIRALTY
ON THURSDAY, 27th APRIL TO DISCUSS THE FUNCTION
OF R.A.F. BALLOON COMMAND AND NAVAL KITE BALLOON
SECTION DURING 'OVERLORD'

Present:

<u>In the Chair</u> - Col. E.E. Johnson, R.N.	D. of L.D.
Group Captain R.J. Montgomery-Moore, R.A.F.	D.D.O. (M.T.) Air Ministry Balloon Command
" " Lord Ashburton, R.A.F.	" "
" " J.N. Browne, R.A.F.	" "
Wing Commander E.N. Adlington, R.A.F.	K. & B. Section, Admiralty
" " A.J. Pelham-Groom, R.A.F.	A.L.O., E.T.F.
Squadron Leader L.C. Lake, R.A.F.	A.E.A.F.
" " E.F. Tanner, R.A.F.	D.D.E.3 (E.20) Air Ministry
Commander G. Borrett, R.N.	A.N.C.X.F.
" S.L.M. Vereker, R.N.	C. in C. Portsmouth
" J.L.F. Manning, R.N.V.R.	D. of L.D.
" R.W.A. Faulkner, R.N.R.	D.S.V.P.
Lt. Commander J.F. Sandars, R.N.V.R.	A.K.B.O., Portsmouth
" " W.J. Quayle, R.N.V.R.	D.C.O.D.
" " R.M.R. Hoare, R.N.	" "
Mr. R.C. Ashton	D. of S. (M.T.)
Mr. N. Simpson	Military Branch

It was agreed that no L.C.T. would be flying Naval balloons for the assault. R.A.F. balloons would be flown at short stay on certain L.C.T. taking part in the assault, as directed by A.N.C.X.F.

2. Shuttle Service

(a) L.C.T. In the shuttle service working after the assault, approximately 2/3 of the L.C.T. employed would fly an R.A.F. balloon and 1/3 a Naval (Mk.VI) balloon.

(b) L.S.T.

(i) L.S.T. would be carrying 2 balloons, i.e. one Naval and one R.A.F. on the outward journey and one Naval balloon only on the return journey.

(ii) Naval K.B. Section confirm that two balloons could be flown from an L.S.T. and agreed to issue the necessary technical instructions for circulation among those concerned.

(iii) It was emphasised by D. of L.D. that in the event of it being possible to fly one balloon only, priority must be given to the Naval Balloon.

3. Newhaven

Lieut. Commander Sandars gave it as his opinion that it would be impracticable for 30 balloons to be flown from Newhaven if all the craft were to be sailed together. Representatives of

/Balloon

N 15248

Balloon Command and A.E.A.F. stated, however, that if Lieut. Commander Sanders were correct it would be satisfactory if the number of balloons to be flown ex Newhaven was reduced to 11 manned and 9 unmanned.

4. Balloon Command undertook to inform C. in C. Portsmouth, and the Admiralty as to the places at which it was likely that R.A.F. balloons would be embarked.

5. Availability of Craft

(a) D.S.V.P. stated that he could provide 10 by 24 R.A.F. marine tenders. These craft would be suitable for fair weather only in sheltered waters, and, without knowledge of the number of balloons to be handled, the position appeared to be as follows (allowing for the above 10 tenders):-

PORTSMOUTH - Craft available should be adequate

SOUTHAMPTON - Craft available should be adequate

SHOREHAM - Additional craft would be required only if it proved necessary to take balloons outside the harbour. Air Ministry have made arrangements with Admiralty to provide one N.A.B. (ROMA)

NEWHAVEN - It was not practicable to come to any decision until further consideration had been given to the number of balloons to be sailed from there. Air Ministry have supplied one 24' marine tender.

N.B. It was agreed that the craft of Naval Kite Balloon Section would be available for transferring R.A.F. balloons to both L.C.T. and L.S.T., when not required for Naval balloons.

(b) It was agreed that the 10 marine tenders would have to be allocated by D.S.V.P. to C. in C. Portsmouth's small vessels pool for re-allocation, to enable K.B. Section to have adequate craft to meet R.A.F. balloon transfer requirements.

6. Manning

D.S.V.P. said that no difficulty in the manning of marine tenders was anticipated. This would have to be arranged, however, between D.S.V.P. and D.P.S. Double manning should be provided as transfers may be necessary night or day.

7. Balloon Plan

The attention of C. in C. Portsmouth's representative was drawn to the existence of the Balloon Plan which was an Addendum to the A.E.A.F. Administrative Plan (OVERLORD R.A.F. Administrative Plan A.E.A.F/M. S. 686/Admin. Plans of 19/2/44: Supplement 2).

8....

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8. P.B.L.O's Balloon Command undertook to forward to the Admiralty (Commander MANNING) the names of the Port Balloon Liaison Officers for promulgation as necessary.

9. In reply to a question by the representative of D. of S. it was stated that R.A.F. transport would deliver the R.A.F. balloons to the hards.

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TOP SECRET.

Headquarters, Allied Expeditionary Air Force,
Kestrel Grove,
Hive Road,
Stamora, Middx.

REF: ANAF/TB.22254/Ops. 6C.

1st May, 1944.

Balloon Armament - Operational & Functional Aspects regarding
employment in Offensive Operation.

Sir,

I have the honour to refer to your letter A12-1/D.D.S.M.3. dated 22nd April, 1944, dated 22nd April, 1944, addressed to Headquarters, 85 Group with copy to this Headquarters. As Headquarters, Second Tactical Air Force will be in charge of the Base Area during the early stages of the "OVERLORD" Operation, it is considered by this Headquarters that they will be interested in any decision which may be arrived at as a result of your letter under reference. This Headquarters has, therefore, forwarded a copy of the letter to Headquarters, Second Tactical Air Force.

I have the honour to be,
Sir,
Your obedient servant,

lek
L. C. LAKE,
Squadron Leader,
Operations 6C.

For Air Commander-in-Chief,
Allied Expeditionary Air Force.

The Under Secretary of State,
Air Ministry (D.D.S.M.3),
LONDON, W.1.

N 15251

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T O P S E C R E T

59A

HEADQUARTERS, ALLIED EXPEDITIONARY AIR FORCE

Kentol Grove, Nive Road,
Stamora, Middx.

REF: AEA/TS.2225/Ops. 6C.

DATE: 1st May, 1944.

SUBJECT: Balloon Armament - Operational &
 Functional Aspects regarding employment in
 Offensive Operation.

TO: Air Marshal Commanding,
 Second Tactical Air Force.

Attached is a copy of Air Ministry letter reference A12-1/D.D.S.M.3 dated 22nd April, 1944, addressed to Headquarters, 85 Group with copy to this Headquarters.

2. It is considered that in view of the fact that your Headquarters is in charge of the Base Area during the early stages of the "OVERLORD" Operation, the suggestions contained in the attached letter will be of interest to you.

For Senior Air Staff Officer,

leh

L. C. LAKE,
Squadron Leader,
Operations 6C.

N 15252

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Terminus 3366
XXXXXXXXXX

13296

5/A.
4/A

19/29 WOBURN PLACE,

56a
XL.

22nd April, 1944.

SECRET

A12-1/D.D.S.M.3

Balloon Armament - Operational & Functional Aspects
Regarding Employment in Offensive Operation.

Sir,

I am directed to refer to your postagram Ref.850/54493/Am. dated 14th April, 1944 and to the recent conversation between W/Cdr. Wright and S/Ldr. Ogilvy-Stuart (Air Ministry, S.M.14) during which it was pointed out that:-

- (i) Whereas the Balloon Barrages in the U.K. and Overseas have hitherto fulfilled their function as a deterrent against low level attack, this can be said to have been achieved as a direct result of the airman's instinctive dislike of any obstruction in the air rather than by any proven lethality of the balloon armament to all types of aircraft.
- (ii) An attack on the Continent can be expected to produce entirely different psychological conditions in that during the initial stages, at least, the implied threat of eventual invasion of Germany itself and the vital importance which will be attached to preventing the establishment of beach-heads can be expected to be sufficient to induce enemy airmen to take greater risks in balloon defended areas than has hitherto been the case. In this connection comparison with the Italian campaign is probably unwise, provided you agree that this is regarded by the Germans as being more of a delaying action in which they are not prepared to extend their defences to the utmost of which they are capable.

N 15253

The Air Officer Commanding,
Headquarters,
85 Group,
Royal Air Force.

/(iii)

Copy to A.E.A.F.

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(iii) The small balloons employed for offensive operations are flown on 15 swg wire with the result that unless the armament functions correctly the effect upon an impacting aircraft is normally insufficient to be even noticed by the pilot. Accidental impacts, as opposed to those occurring during deliberate below barrage level attack, are almost inevitable and consequently the maintenance of the deterrent effect is dependent upon the functional efficiency of the armament.

(iv) Efficiency of the Balloon Armament is dependent upon:-

(a) Correct fitting, servicing and maintenance.

(b) Intelligent remedial action as the result of the immediate investigation of impact failures by an officer who is fully conversant not only with the normal functioning of the armament components but also with the theoretical data obtained under trial impact conditions and the laws governing the action and intensity of the longitudinal tension wave front essential for the functioning of the armament and is in the picture as regards the facilities available for immediate modification or variation in the normal sequence and positioning of the armament units, swivels, length of strops etc.

2. With further reference to paragraph 1(iv) you will appreciate that

(1) Practical experience as regards unintentional impacts with armed 15 swg wire is extremely limited.

(ii) The fact that during the landings in Italy the balloons were successful in preventing low level attack may result in the enemy employing aircraft fitted with some form of counter balloon cable device in order to nullify this form of defence. In this connection it is known that out of 21 enemy aircraft which crashed in the U.K. between February 26th and March 14th of this year, examination showed that:-

(a) All 5 JU.88 aircraft were fitted with knife edge cutters

/(b)

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N 15254

(b) 2 of the 8 JU.88's had cutters and 5 of the remaining had fittings which would have enabled cutters to be fitted in a few hours ✓

(c) 1 of the DO.217 had cutters and 2 of the 3 HE.177

(d) In 6 cases, including 2 HE.410's no information is available.

Where the leading edges are fitted for hot air de-icing, cutters can be attached very rapidly.

(iv) In theory the system of arming used for the small balloons should defeat the enemy knife edge cutters up to an air impact speed in the region of 340 m.p.h. or higher if there is obliquity of impact. Employment of a cutter fairing which shatters on impact with 15 swg wire would, however, result in an appreciable reduction in the maximum impact velocity at which the armament could be expected to be reasonably reliable or, alternatively, a comparatively light form of fender would probably defeat the armament altogether.

3. In view of the position outlined above you may consider that both from an operational and technical point of view, it would be advantageous if an officer with the requisite theoretical and technical knowledge of all forms of balloon armament should accompany the beach and base port balloon squadrons during the initial stages when it will be important that:-

(1) All possible immediate action to maintain the deterrent effect of the barrages is taken with a minimum of delay; or, alternatively, the nullification of the deterrent effect by a counter measure is made known to your Air Staff at the earliest possible stage.

(11) First hand investigation of any failures or the effect of enemy counter measures is commenced immediately in order that the deterrent effect of the balloons may be restored as quickly as possible.

N 15255

14.

4. With further reference to paragraph 3 above I am to confirm that if you so desire an Air Ministry officer with the requisite knowledge and experience of Balloon Armament under both home and overseas conditions can be attached to your Staff for a limited period as from 'D' day, together with an A.S.T.P. (Aircraft Servicing Training Party) N.C.O. who has been given special training in Balloon Armament and with particular reference to the investigation of failures.

5. Alternatively you may consider that the risk of the loss of the deterrent effect during the beach stage can be accepted, in which case I am to confirm that arrangements can be made for the above-mentioned specialist officer to visit the base defence balloon units after the position has become stabilised.

I am, Sir,

Your obedient servant,

(Sgd.) A. S. MORRIS

Director of Servicing and Maintenance.

A. E. A. F. H. Q.	
AIR MINISTRY	
op-6 844	
ENGINEERS	
24 APR 1944	
TRANSIT	
FILE No.
TO	ON

Copy to A.E.A.F.

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N 15256

(53a)

NON-RESTRICTED.

TO: C in C Portsmouth,
(R) A.N.C.X.F. N.C.E.T.F.
Air Ministry (OMP 3)
Balloon Command.

FROM: Admiralty.

Your 191640. Meeting arranged for 1500 Thursday, 27th April in Admiralty, room 48, bank block. Request you will forward advance copy of remarks which require discussion to reach Admiralty by Tuesday next.

D.T.G. .. 212128B, April.

Passed to NH. T/P P/L. 220648.

N 15257

Ref. 191640. Requested meeting be arranged concerning "B" Balloon units.

SEC COS A/SEC DCOS CNAO ANAO RA(B) SOO SOLO A/SOO
SOP(O) A/SOP CDR.T. SOA SOCP SOCP ACOS(US)(2) SEO(2)
NCEFF CSO(BA) RAF LOG ABAP(NH) SIGS(3)

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A. E. A. F. H. Q.	
SECRET REGISTRY	
To:	afob 814
With:	ENCLOSURES
RECEIVED:	24 APR 1944
RELEVANT FILE & LATEST TRANSIT	
FILE NO.:
TO:	ON

MF



KG
64552a

TOP SECRET

Copy No. 42A-45A

HEADQUARTERS,
ALLIED EXPEDITIONARY AIR FORCE,
NORFOLK HOUSE, ST. JAMES'S SQUARE,
LONDON, S.W.1.

REF: AEAR/MS.686/Admin Plans.

24 April, 1944.

SUBJECT: Amendment List No. 3 to A.E.A.F. R.A.F.
Administrative Plan - Operation 'OVERLORD'.

TO : See attached list for Distribution.

1. It is requested that the following amendments be made to the A.E.A.F. R.A.F. Administrative Plan for Operation 'OVERLORD' issued under the above reference dated 19th February, 1944:-

(i) Table of Contents: Add after "List of Appendices":--

"SUPPLEMENT NO. 1 - Airborne Operations, Tactical Re-Supply and Emergency Air Supply - Administrative Arrangements.

SUPPLEMENT NO. 2 - Plan for British Balloon Protection of Beaches, Mulberry and Ports."

(ii) At end of Plan insert copies of above Supplements attached hereto.

2. Additional copies of either of the above Supplements may be obtained on application to the above Headquarters.

For Air Officer i/c Administration,

H. S. SHARFOTT,
Group Captain,
Admin. 1.

Copy 43 to AEAR/22253.
44 Ref. to personal file
45 Col. Murray. Ops 6.

N 15258

DISTRIBUTION.....

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DISTRIBUTION:

SUPPLEMENT NO. 1:

Internal and External Distribution as for Administrative Plan.

SUPPLEMENT NO. 2:

Internal Distribution as for Administrative Plan plus
Ops. 6 .. 42-45

External:

Copy No.

A.M.S.O.	46
D/A.M.S.O.	47
A.C.A.S.(P)	48-49
D.G.O.	50
D. of O.	51
D.W.O.	52-53
D. of Mov.	54-55
D.G.E.	56
D. of E.(C)	57
D.D.E.S	58
Eq. Plans	59
D.G.S.M.	60
S.M. Plans	61
D. of I. (S)	62
D. of Ops. (Fac)	63
Signals Plans	64-65
G-3 Division, S.H.A.E.F.	66-67
G-4 Division, S.H.A.E.F.	68-70
A.N.C.X.F.	71-72
H.Q., 21 Army Group (includes copies for H.Q., Second Army)	73-77
H.Q., Maintenance Command	78-79
H.Q., Bomber Command	80
H.Q., Coastal Command	81
H.Q., Balloon Command	82-84
H.Q., Second T.A.F.	85-114
H.Q., A.D.G.B.	115-117
H.Q., 38 Group	118-120
H.Q., 85 Group	121-135

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OPERATION OVERLORD

ALLIED EXPEDITIONARY AIR FORCE

ROYAL AIR FORCE ADMINISTRATIVE PLAN

PLAN FOR BRITISH BALLOON PROTECTION OF BEACHES,
MULBERRY AND PORTS

TOP SECRET
COPY NO 42

SUPPLEMENT NO. 2 to
AEAF/MS. 686/Admin. Plans.

LIST OF APPENDICES :

- A - Chart showing craft sailing with RAF Balloons.
- B - Schedule showing anticipated number of Balloons flying on the Continent.

I N T R O D U C T I O N

1. The object is to provide V.L.A. balloons on the Continent flying at 2,000 ft. for the protection of :-

- (a) Assault Beaches and beach maintenance areas.
- (b) MULBERRY B.
- (c) Various ports as the Operation develops.

M E T H O D O F P R O T E C T I O N

Beaches

2. Beaches will be protected from D Day and crews will bring in their balloons flying as soon as possible after the Assault and deploy forthwith.

MULBERRY

3. Although it will be possible in the early stages to provide a limited degree of protection from beach resources the main MULBERRY protection cannot be brought in until D + 4, when a Coaster will carry across uninflated balloons, ancillary equipment and hydrogen, so that a barrage of 60 Balloons can be deployed immediately by personnel who will have been brought in on D + 3.

Ports

4. Port protection will be provided as the Operation progresses. It will be the responsibility of 21 Army Group to request balloons on the scale required from A.E.A.F. through Second T.A.F. All port units are designed so as to be self-contained, and port balloons will always be transported deflated in craft arranged for by 21 Army Group together with the necessary hydrogen, ancillary and administrative equipment and personnel.

B E A C H B A L L O O N S Q U A D R O N S

Requirements

5. 3 Squadrons of 60 balloons each under a S/Ldr. will be transported to the Continent on D Day. These will be allocated as follows :-

- No. 976 "B" Balloon Squadron to No. 1 Beach Squadron.
- No. 974 "B" Balloon Squadron to No. 2 Beach Squadron.
- No. 980 "B" Balloon Squadron to No. 4 Beach Squadron.

Administration

6. Balloon Squadrons will be administered by their appropriate Beach

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N 15260 /Squadron

Squadron and Second T.A.F. will arrange for their rationing and necessary medical services from the Army.

Method of transporting balloons

7. It is not possible, owing to Radar objections, to fly balloons on D Day on any craft reaching the lowering position before H-15 mins. Furthermore on that day balloons cannot be flown across at a height of more than 100 ft. until an increased height is authorised by A.N.C.X.F. through N.C.E.T.F. As L.C.T. and L.S.T. are the only available craft on which balloons can be transported flying, the total number of balloons which can be carried over on D Day is 199 allowing for the Radar restriction, comprising 95 on the first tide and 104 on the second. This is sufficient to provide 180 balloons together with their crew of 2 and one light portable winch per balloon plus 19 unmanned balloons flying from short stay which will be used to replace some of the anticipated casualties on the voyage. Second Army has undertaken to detail 2 men to each of the 180 balloons carrying winches to assist in the loading and unloading of the winch and the transfer of the balloons from disembarkation point to site. A.N.C.X.F. has instructed N.C.E.T.F. that L.S.T. will carry a R.A.F. balloon in addition to the Naval balloon which is carried for their own protection.

Build-up

8. After D Day R.A.F. balloons will be flown across channel to replace casualties on every L.S.T. and on 2/3rds. of the L.C.T. sailing from this country. It has been decided by A.N.C.X.F. that the remaining 1/3rd of the L.C.T.'s must carry a Naval balloon for their own protection on the homeward voyage. At Appendix 'A' is a chart showing the total number of craft available for deployment and build up, together with their dates and ports of sailing as far as is known at present. The variations in these dates and ports are not expected to be material.

Casualty Rate

9. It is estimated that casualties to balloons are likely to occur on the following scale:-

- (a) While flying during transit 20%
- (b) While deployed during first seven days 30% daily
- (c) While deployed thereafter 15% daily

At Appendix 'B' is a schedule showing the number of balloons which can be expected to be flying up to the time when the full extent of Beach and MULBERRY protection can be built up by the sole process of flying balloons across channel, allowing for the fact that 60 balloons for MULBERRY are being brought in uninflated on D + 4 (para. 16 refers).

Implications of build-up rate

10. Inflated Balloons. It will be apparent from a study of Appendix "B" that the full number of 180 balloons on the beaches cannot be built up by the ferrying method by D + 4, and that there will be times when the number of balloons flying is reduced to about 100. There is no method of obtaining a greater supply of balloons before D + 4, and this reduced protection at times in the early stages will therefore have to be accepted. It is, however, considered that if balloons can be maintained to the minimum extent shown at Appendix 'B', the barrage will be sufficient to provide an adequate deterrent effect to low flying aircraft.

11. Uninflated Balloons. It is most desirable to raise the barrage to the full strength of 180 balloons for beaches and 50 for "MULBERRY" as rapidly as possible, and Second T.A.F. will therefore arrange the "phasing in" on D + 4 and thereafter as necessary of sufficient packed balloons and hydrogen to raise the daily total from that shown in Appendix 'B' to 230. Second T.A.F. will be responsible for estimating requirements of balloons and hydrogen for inflation

and topping-up purposes, and informing Air Ministry who will make the necessary provisioning arrangements with Balloon Command. It will be necessary for the Balloon Staff Officer on the beaches to make most careful arrangements for the return of empty hydrogen cylinders to this country, as the entire success of the hydrogen supply chain depends on this being carried out efficiently.

12. With a view to increasing further the rate of build-up, two further possibilities are being explored by 21 Army Group, A.N.C.X.F. and Balloon Command :-

- (a) Whether it is practicable to carry over a balloon inflated and flying from short stay in addition to the one already flown for craft protection on Merchant vessels which will be sailing from this country to the Continent.
- (b) Whether a quantity of hydrogen and packed balloons can usefully be carried over on block ships. In this connection it is to be remembered that packed balloons can only be carried where dry storage space can be guaranteed and that the supply of hydrogen cylinders available for the Operation is limited so that unnecessary loss of cylinders by sinking or damage by prolonged immersion should be avoided.

As both these possibilities are uncertain, they have not been taken into consideration when estimating the hydrogen and packed balloon requirements mentioned in para. 11 above.

Vehicles

13. Four 3-ton servicing vehicles per "B" Balloon Squadron will be "phased-in" on the second tide of D + 1 and two additional 3-tonners per Squadron on D + 5 or as soon thereafter as possible.

MULBERRY BALLOON SQUADRON

Requirements

14. 60 balloons are required for protection of MULBERRY B and these will be supplied by No. 991 "B" Squadron which combines Nos. 56 and 57 "B" Balloon Flights of 30 balloons each.

Administration

15. As no R.A.F. Beach Squadron exists to which this squadron can be attached No. 991 "B" Squadron H.Q. has been established for the purposes of administration.

Method of transporting MULBERRY Units.

16. The Balloon and Squadron Headquarters personnel, together with the Unit vehicles, will be "phased-in" on D + 3. Packed balloons, hydrogen, rear party personnel and ancillary equipment to the scale agreed between Balloon Command, Second T.A.F. and Second Army, will be transported on a suitable Coaster and unloaded through the MULBERRY organisation on D + 4.

Casualty Rate

17. As for Beach Balloons, see para. 9 above.

CONTROL OF BALLOONS

18. Control of balloons will be vested in the A.A.D.C. of the area protected and all applications in respect of controls will be made to him. Lanes for aircraft approaching Landing Strips will be arranged as necessary by Second T.A.F. when the detailed siting of balloons is being decided. It must be realised that controls can only be implemented on a pre-arranged plan.

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/ Inter-site

Inter-site communications do not exist except by runner and the bedding of a barrage by hand winch cannot be accomplished in less than an hour from the time of receipt of orders at sites. Control by hand winch will be necessary on the night of D/D + 1 and possibly D+1/D+2. As soon as practicable control by powered winch will be instituted owing to the labour involved in hand winching and the fact that it may be impossible to haul down the balloons by hand winch in high winds. The normal method is for the balloons to be hauled down by power provided by the servicing tenders which move from site to site for the purpose, one vehicle servicing 15 balloons. The time taken to ground a barrage will vary between 1½ and 2½ hours according to the difficulty in getting the vehicle round the circuit of sites. Balloons cannot be bedded when flown from craft, and it has been accepted by Second Army that balloons on Phoenix and Block Ships can be considered close-hauled when flying at a height not exceeding 100 ft.

Responsibility for Bidding

19. The "phasing-in" of all balloon equipment, hydrogen and personnel will be the responsibility of 2nd Army in consultation with Second T.A.F.

Density of protection

20. Theoretical balloon siting has been carried out for the Beaches, Beach maintenance and MULBERRY areas, and the full scale of protection involves a distance of 300 to 350 yards between each balloon. It has been found in this country that siting of balloons at intervals of 500 or more yards provides an adequate deterrent to low flying, but the difficulties of maintaining a barrage at anything like full strength under the conditions anticipated have been taken into consideration when the rather dense siting mentioned above was recommended.

Balloons on Phoenix and Block Ships

21. Balloons will be flown on Phoenix and Block Ships for protection of MULBERRY and GOOSEBERRIES. These balloons will be supplied from the 240 balloons provided for Beach and MULBERRY protection. The Navy has accepted responsibility for ferrying inflated balloons and balloon personnel from the beaches to provide for initial deployment and subsequent casualty replacements. Arrangements will be made between 21 Army Group and Balloon Command for the installation of a light portable winch on each of the 36 Block Ships. In the case of Phoenix a winch will be taken out from the shore and installed on the Phoenix at the time the balloon is deployed on to the vessel.

Establishment of Units

22. Beach and MULBERRY Squadrons are at present established on Balloon Command and will be transferred to the establishment of Second T.A.F. prior to Squadrons entering the concentration area.

PORT UNITS

Requirements

23. 21 Army Group have estimated requirements for port protection as follows:-

<u>Approx. date of disembarkation.</u>	<u>No. of Balloons.</u>
D + 8 (to be confirmed between T.A.F. and Second Army)	25
D + 20	15
D + 50	45
D + 70	10
D + 70	15
D + 80	50
D + 90	50

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Not only must the dates mentioned be considered highly speculative and subject to very material alteration, but it is anticipated that the requirement will almost certainly be increased as the Operation progresses.

Existing resources

24. Balloon Command have formed for overseas ports requirements 5 Squadrons containing 11 flights, totalling 190 balloons. In addition 3 Squadrons, comprising 9 flights and 165 balloons are being deployed to ports in this country for protection during the early stages of the "OVERLORD" Operation. Any balloons, therefore, in excess of 190 required on the Continent can only be provided in the following ways:-

- (a) By withdrawing balloons deployed at home ports.
- (b) When the stage has been reached at which Beach Balloon Squadrons are no longer required, by withdrawing them and re-forming them on a Port basis provided the necessary additional equipment is available.

A.D.G.B. will be requested by A.E.A.F. at the appropriate time to consider and report on the priority of withdrawals from this country and the estimated time at which such withdrawals can be carried out.

Organisation of resources

25. Port Units are able to operate in multiples of 5 balloons. In view of the impossibility of giving a reliable estimate of the tasks or the dates of deployment, it is necessary that Port Balloon Formations be maintained on the most elastic possible basis, so that they may be employed at short notice on any task in any required numbers.

Responsibility for Nominating Port Requirements

26. 21 Army Group will be responsible for requesting from A.E.A.F. through Second T.A.F. port protection as it is required, and for providing suitable transport to carry the Port Balloon organisation overseas.

Administration

27. All port Squadrons and flights are provided with sufficient personnel to be self-contained except for medical services. These services, petrol, oil and all normal maintenance equipment will be supplied as arranged by Second T.A.F.

Hydrogen supplies

28. It is impossible to transport Port Balloons from this country inflated, owing to the impracticability of carrying inflated balloons to their deployment area from points of disembarkation. For port protection, therefore, it is essential to bring hydrogen cylinders or a hydrogen plant and deflated balloons. Loading schedules for hydrogen cylinders and hydrogen plants for Balloon Port Units of the various sizes have already been supplied to 21 Army Group, who will be responsible for arranging through Second T.A.F. with Balloon Command for initial supply of hydrogen cylinders to ports and for transport of hydrogen plants and necessary chemicals when it is considered desirable to produce hydrogen in deployment areas and provided that sufficient chemicals can be made available at the time.

Control of Balloons

29. Control will be vested in the A.A.D.C. of the protected port. The measure of control which will be possible is:-

- (a) Grounding of balloons from 2,000 ft. This will take 1 - 1½ hours approximately.

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- (b) To fly balloons from grounded position to 2,000 ft. will take 3/4 to 1 hour approximately.

NOTE. In cases where balloons are flown from Breakwaters, piers or buoys, it is probable that in some cases they could not be closehauled within any period acceptable to the controlling authority.

Casualty Rate

30. Balloon casualties are in the main caused by A.A. shell fire and breakaways through weather conditions. Very little reliable data from active operations in ports is available, but it is reasonable to assume that casualties will be highest and replenishment most difficult immediately after deployment, and that casualties may decline sharply thereafter. The following estimate is based on the above factors:-

X + 1 to X + 3	=	50% daily	} Where X is date of capture of port.
X + 4 to X + 9	=	20% daily	
X + 9 to X + 17	=	12 1/2% daily	
X + 17 to X + 31	=	7% daily	
X + 31 onwards	=	5% daily	

Establishment

31. Port Units are at present established on Balloon Command and will be transferred, prior to embarkation, to the establishment of Second T.A.F., or 85 Group, whichever is in control of the base area at the time the Unit is embarked from this country.

SUMMARY OF RESPONSIBILITIES.

32. Detailed planning covering the "phasing-in" of Beach and Port balloons, hydrogen, equipment and personnel, together with their deployment on the Continent, will be carried out between Second T.A.F. (until such time as this responsibility is assumed by 85 Group) and initially Second Army, thereafter 21 Army Group.

33. (i) Detailed planning covering organisation and requirements in United Kingdom for producing inflated balloons, their equipment and hydrogen for all purposes at the ports as required will be carried out by Balloon Command in consultation with Second T.A.F., N.C.E.T.F. and initially Second Army, thereafter 21 Army Group.

(ii) A.E.A.F. will give Balloon Command the maximum notice for the transfer of "B" Balloon Squadrons and "D" Units to Second T.A.F. who will arrange for the movement of these Units from their present locations to the concentration areas, together with the equipment I.E. and I.R. except as detailed in (i) above.

34. Estimates of overall requirements, such as balloons, balloon equipment, hydrogen and transport, are the responsibility of Balloon Command who will make arrangements direct with the appropriate departments of Air Ministry.

N 15265

TOP SECRET

L.S.T. and L.C.T. available for carriage of R.A.F. Balloons

These figures must be treated as approximate and liable to alteration

<u>Arriving on 1st. Tide</u>	<u>Loads at</u>	<u>Loads on</u>	<u>Force.</u>
L.C.T. 20	Gosport or Stokes Bay	D - 2	J.
L.C.T. 30	Newhaven	D - 2	S.
L.C.T. 20	Shoreham	D - 2	S.
L.S.T. 3	Southampton	D - 3	J.
L.S.T. 9	Southampton	D - 2	J.
L.S.T. 5	Gosport	D - 4	S.
L.S.T. 3	Southampton	D - 4	G.
L.S.T. 5	Southampton	D - 3	G.
<hr/>			
95			

Arriving on 2nd Tide.

L.C.T. 50	Tilbury	D - 2	L.
L.S.T. 12	Southampton	D - 2	J.
L.S.T. 1	Gosport	D - 4	S.
L.S.T. 11	Gosport	D - 3	S.
L.S.T. 12	Southampton	D - 3	G.
L.S.T. 18	Tilbury	D - 3	L.
<hr/>			
104			

Arriving on 3rd Tide

L.S.T. 5	Gosport	D - 2	S.
L.S.T. 2	Tilbury	D - 3	L.
L.S.T. 5	Tilbury	D - 2	L.
L.S.T. 22	Folixstowe	D - 2	L.
<hr/>			
34			

After D day Sailings of craft carrying R.A.F. Balloons will be roughly as follows:

<u>Day</u>	<u>Type</u>	<u>Loads at</u>	<u>No.</u>	<u>Type</u>	<u>Loads at</u>	<u>No.</u>
D + 1	L.C.T.	Newhaven	14	L.S.T.	Gosport	12
		Gosport	97		Southampton	9
<hr/>			111	<hr/>		21
D + 2	L.C.T.	Nil	Nil	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	13
<hr/>						31
D + 3	L.C.T.	Gosport	32	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	12
<hr/>						30
D + 4	L.C.T.	Gosport	32	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	10
<hr/>						28

N 15266

Thereafter As D + 4

DAY	No. of Balloons sailing from U.K.	20% Casualties on voyage.	No. of Balloons arriving	No. of Balloons available after arrival of fresh supply	Casualties during succeeding 24 hours at 30% daily	No. of Balloons remaining after Casualties
D	199	39	160	N.A.	48	112
D + 1	34	7	27	139	41	98
D + 2	132	26	106	204	61	143
D + 3	31	6	25	168	50	118
D + 4	+ 60 ⁶² for MULBERRY	12	110	228	68	160
D + 5	60	12	48	208	62	146
D + 6	60	12	48	194	58	136
D + 7	60	12	48	184	55	129
CASUALTIES HEREAFTER CALCULATED AT 15% DAILY.						
D + 8	60	12	48	177	26	151
D + 9	60	12	48	199	30	169
D + 10	60	12	48	217	32	185
D + 11	60	12	48	233	35	190
D + 12	60	12	48	246	37	209

ET. SEQ.

The above estimated build-up does not allow for inflating balloons on the Continent (other than 60 for MULBERRY) from D + 4 onwards. See paras. 10 and 11.

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Authority NND 947020

N 15267

SECRET.

51A

CYPHER MESSAGE.

To— A.M. (OM3) Balloon Command A.E.A.F., A.N.C.X.F., N.C.E.T.F.	Date 24th April	
	Time of 0512	Receipt Despatch
FROM— Admiralty	System	

TOP SECRET.

Serial No. 6/24

Reference Admiralty message 161505 and C in C Portsmouth
191640 (not to A.E.A.F.) Meeting to discuss Balloon Command *and*
Naval Kite Balloons Section during Overlord is being held in
Admiralty Rooms, 48 Bank Block at 1500 Thursday, 27th April.
Request you will be represented

= 231905B

2 D.S.O. A.E.A.F.
2 Balloon Cmd.

C.T./G.F.

ACTION COPY



N 15268

DECLASSIFIED

Authority NND 947020

50A



RESTRICTED.

TO Admiralty. FROM C. in C. Portsmouth.
(R) A.N.C.X.F.
N.C.E.T.F.
Air Ministry Balloon
Com and (Cont.3).

49A

Your 16 1505B paragraph 6 position is not clear. Request meeting may be arranged.

D.T.G. 12 16 48 April.

RD IN by T/P P/L at 20 0515.

(Reference 16 1505 - TOP SECRET - Craft required for "B" Balloon Units).

SIG (OS A/SIG DCOS CNAO ANAO RA(E) SCO SOLO SOC A/SOC
SOP(O) A/SOP CDR.T. SOA SOCP SOCF AOCB(US)(2) SOO(2)
NORTH CSD(B) RAF LOG. AEAF(1H) SIGS(3).

(This signal to be destroyed with TOP SECRET WASTE as reference is "TOP SECRET").

E.M.M.
N 15269

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Authority NND 947020

49A

TOP SECRET.

To: C in C Portsmouth
(R) A.N.C.X.F., Air Ministry O.M.T. 3.
Balloon Command, N.C.E.T.F.

From: Admiralty

Your 101707/April not to all addressees. Small craft for ferrying "B" unit balloons are an operational requirement. If weather precludes possibility placing balloons on landing ships and craft when alongside quays or hards boats will be required to transfer them.

2. Should operation be delayed after delivery of balloons they would probably need replacement at moorings owing loss of gas and boats would be required to effect exchanges.

3. Type of boat necessary will depend on where Landing ships and craft are lying when balloons have to be delivered. Request you will advise your requirement stating whether 24 foot RAF open marine tenders would be suitable. Maximum use should be made of existing naval kite balloon servicing craft.

4. No trials at Home have yet been carried out to fly two balloons in L.S.T., but believed to be practicable and A.N.C.X.F. has no objection to this arrangement. In order to maintain beach-head barrages, carriage of RAF Mark VI balloon in L.S.T. is essential requirement. N.C.E.T.F. is requested to put an L.S.T. at disposal of K.B. officer for any trials considered necessary.

5. Admiralty letter on functions of RAF Balloon Command in OVERLORD as separate from Naval Kite Balloon sections follows. Contact between Balloon Command and Naval authorities at any port or Hard will be Balloon Port Liaison Officers.

6. If position not clear meeting of all concerned will be arranged in London.

D.T.G. 161505B April.
for D. of L.D. (66)

SHM from Adm. Q400/17.

Approved by A.C.N.S. (H).

Ref. 101707/4 - OVERLORD - Details of Small craft required for "B" Balloon units.

SEC COS A/SEC DCOS CNAO ANAO RA(E) SCD SOLO SOC
A/SCC SGP(O) A/SOP CDR T SOA SOCP SOCF ACOS(US)(2)
SGO(2) N.C.E.T.F. CSO(BA) RAF Log ARAF(NH) SIGS(3).

RECEIVED 18 APR 1944
Hq ARAF
John Lake
K.G.

N 15270

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Authority NND 947020

HEADQUARTERS
ALLIED EXPEDITIONARY AIR FORCE
NORFOLK HOUSE, ST. JAMES' SQUARE
LONDON S.W.1

22257. ops G.
SECRET.

451A

REF : AEAF/TS.687/Admin DATE : 14 April 1944.
SUBJECT : Operation "OVERLORD" - British Balloon
Protection.
TO : Headquarters, A.E.A.F.,
(Group Captain, Org.)

1. The undermentioned recommendation has been received from Headquarters, 2nd T.A.F. amongst comments which that Headquarters has forwarded on the draft plan for British Balloon Protection during Operation "OVERLORD":

" It is considered that all Port Units which may be required for Operation "OVERLORD" should be sufficiently established with M.T. for purposes of mobility. "

2. Due consideration has been given to this suggestion and it has been discussed with Ops.6(c) who is in agreement with the views of this Branch that full mobility for Port Balloon Units is unnecessary.

3. The transport required for moving a Port Balloon Unit to port of embarkation in this country can be provided under the normal organisation for the provision of transport for non-mobile units for movement in this country. Additional transport required on the far shore could be supplied from the Group Pool under 2nd T.A.F. or No.85 Group, whichever, is appropriate. It is not considered that Port Balloon Units will be required to move frequently when established on the continent.

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4 N 15271

4. It is requested that you will pursue this matter with Headquarters 2nd T.A.F.

M.S. Shapcott

M.S. SHAPCOTT,
Group Captain,
Admin 1.

Copy to: H.Q. A.E.A.F. Ops.6(c) ✓

N 15272

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N 15272

Subject:- OVERLORD - Balloon barrage

~~SECRET~~ 44A

Sqn Ldr LAKE, ~~REDACTED~~

21 AGp 6501/10/RA(AA)

14 Apr 44

Ref 21 AGp/6501/10/RA(AA) dated 25th March 1944.

1. It has now been agreed with Second TAF that all bidding, other than that already done by Second Army, will now be undertaken by Second TAF. This bidding will include balloon squadrons themselves and all stores and maintenance.
2. The responsibility of 21 Army Group will thus be confined to stating when a barrage is required.
3. Accordingly, the details requested in para 6 of the above letter will not now be required by this HQ.

Michael James
Major-General,
Royal Artillery,
21 ARMY GROUP.

HQ 21 Army Gp,
No.1 AFDC,
London W.1.

Copy to Second TAF(Planning)

A. E. A. F., H. Q.	
SECRET REGISTRY	
To:	air 168
DATE	15 APR 1944
RELEVANT FILE & LATEST TRANSIT	
PILE No.
TO ON

N 15273

DECLASSIFIED
Authority NND 947020

~~3072~~
41a

Reference:
KBC/S.52329/8/Org.

10th April, 1944.

Sir,

I have the honour to refer to your Memorandum ABAF/MS.687/Admin.Plans. dated 4th April, 1944, and as requested offer the following comments:-

- ✓ 1. A.D.G.B. should be added to the distribution list vide para. 24.
- ✓ 2. (Para. 3, line 4). After "Balloons" add "and ancillary equipment."
- ✓ 3. (Para. 6, line 1). Amend to read "Units, after transfer from Balloon Command, will be administered, etc."
Note. Early transfer of the 'B' Balloon Flights to 2nd T.A.F. is recommended.
- ✓ 4. (Para. 7, line 3). It is suggested that "available" would be a better word than "suitable".

5. The figures given in para. 7 are not in agreement with Appendix A and there would appear to be considerable discrepancies between the figures shown in Appendices A and B.

Yes.
Agree with
KNC&F.

6. (Para. 7). No mention is made in this paragraph of assistance from Army personnel (two per Balloon) without which the light portable winches cannot be unloaded and taken to the sites. It is understood that Brigadier Benson has undertaken to make arrangements for this to be done.

7. (Para. 8, line 1). Whilst it is noted that the flying of two Balloons from an L.S.T. may be accepted, trials have not yet been carried out to ascertain whether the second balloon can be embarked and flown without endangering the ships' gear aft such as wireless aerials, etc.

X

8. (paras. 10 and 11). It is recommended that para. 10 be headed "Inflated Balloons" and para. 11 "Packed Balloons". It is desired to make clear that Balloon Command responsibilities are limited to the provision and embarkation of inflated balloons both initial and replenishment under the Plumtree system, and for the supply of compressed hydrogen in cylinders.

9. (Para. 11, line 6) Delete the words "number of Balloons and".

10. (Para. 11, line 3) After the words "necessary supplies" add "of hydrogen".

Note. The supply of Balloons to the "B" Balloon Flights will call for the closest co-operation between the Equipment Staffs concerned because a portion of the balloons and equipment will be fed to the Flights by the Plumtree system with inflated balloons and the remaining portion by shipment packed through normal R.A.F. channels. In the case of Mulberry and the Port Balloon Squadrons, there appears to be no reason to treat any stores, except hydrogen, as other than normal R.A.F. stores, delivered and stocked in the usual way.

11. (Para. 12 (b)).

It is desired to emphasise that hydrogen cylinders are limited in number and further supplies ~~have~~ ^{can} not ~~be~~ ^{be} provisioned. This Headquarters therefore deprecate any undue risk of loss such as might occur through a considerable number being sunk en route, or through difficulties in unloading on arrival.

N 15274

..over

Air Officer Commanding-in-Chief,
Headquarters, A.E.A.F.

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Authority NND 947020

- ✓ 12. (Para. 13, line 1) Amend to read "vehicles per B Balloon Flight."
- ✓ 13. (Para. 14, line 2) Delete "Units" and substitute "B Balloon Flights".
- ✗ 14. (Para. 15, line 2) After "organisation" add "No. 991 B Balloon Squadron".
- ✓ 15. (Para. 16, second sentence). It is suggested that this should read "packed balloon, hydrogen, rear party personnel and ancillary equipment to the scale agreed between Balloon Command and 2nd T.A.F. will be, etc."
- ✓ 16. (Para. 19, line 1). After "equipment" insert "Hydrogen".
- ✓ *Remove to say Balloon Command* 17. (Para. 21). It is requested that guidance may be given as to where the responsibility rests for demanding L.P.W's and placing them on block ships.
- ✓ 18. (Para. 24(b), last line). Recommend this is amended to read "them and their equipment to this country and reforming them as Port Flights provided the necessary additional equipment is available."
- ✓ Note. It must be borne in mind that provision has been made on the basis of an I.E. of 355 Balloons only.
- 16 ✓ 19. (Para. 26). For "21st Army Group" read "2nd T.A.F."
- ✓ 20. (Para. 27). Delete the words "in conjunction with Balloon Command" at the end of this paragraph.
- ✓ 21. (Para. 28, last line). Add "and provided that sufficient chemicals at that time can be made available."
- ✓ 22. Amend "Summary of Responsibilities" from sub. heading to form a major heading "SUMMARY OF RESPONSIBILITIES".
- ✓ 23. (Para. 32, 1st line) Insert word "Hydrogen" after "Balloons".
24. (Para. 33). It is suggested that this should read as follows:-
 " (i) Detailed planning covering organisation and requirements in United Kingdom for producing inflated balloons, their equipment and hydrogen for all purposes at the Ports as required will be carried out by Balloon Command in consultation with 2nd T.A.F., 2nd Army and N.C.E.T.F.
 (ii) A.E.A.F. will ^{give} apply to Balloon Command giving the maximum notice for the transfer of 'B' and 'P' Units to 2nd T.A.F. who will arrange for the movement of these Units from their present locations to the concentration areas together with the equipment, I.E. and I.R., except as in (i) above.
25. (para. 34). The words "and transport" in the second line call for some comment. 'B' Flights are of course not fully mobile and do not require to be. The 'P' Units, however, have only sufficient transport for carrying out their operational function after deployment. The establishment does not include sufficient transport either to make all the equipment mobile or to make the personnel mobile. Movement of Balloon Units to the concentration area would therefore require the assistance of the Movement Control Authorities or road transport, and at disembarkation the assistance of the responsible authority. The question of non-mobility has been brought out in the/

- 3 -

the Paper prepared for Balloon Command, under reference KBC/S.52377/19/Ops. dated 9th April 1944. If mobility is required for any or all the 'P' Units, immediate instructions to this effect should be given to this Command stating where the mobility is to cover personnel and equipment or equipment only so that establishment action can be taken.

I have the honour to be,
Sir,
Your obedient Servant,

C. H. Nicholls MC
Air Vice Marshal,
Air Officer Commanding,
BALLOON COMMAND, R.A.F.

N 15276

DECLASSIFIED

Authority NND 947020

BIGOT

TOP SECRET

E-35
40A

From:- H.Q., 2nd Tactical Air Force, c/o 21 Army Group.

To :- H.Q., A.E.A.F., Norfolk House, St James Square, London. S.W.1.

Ref :- 2TAF/MS.2759/PAd/30.

Date:- 7th April 1944.

DRAFT PLAN - BRITISH BALLOON PROTECTION -
OPERATION OVERLORD.

First draft of the plan of British Balloon protection of beaches, mulberries and ports has been carefully studied, and the following comments are made.

9 with H.C. ✓
2. In para. 2, sub-heading Ports, it states that 21st Army Group will request balloons to scale required from A.E.A.F. It is considered that as 21st Army Group will be the corresponding level in the field to this Headquarters, the most satisfactory channel would be from 21st Army Group through 2nd T.A.F. to A.E.A.F.

✓
3. With regard to para. 5, sub-heading Requirements, careful thought has been given to the question of Beach Balloon Units, and it has been decided that for the better efficiency of these Units, it will be necessary for a Squadron Leader Balloons to be established on each R.A.F. Beach Squadron Headquarters; this officer to co-ordinate the 2 Balloon Units, to sit in at each Group Conferences, and to be responsible to the Senior Balloon Officer for all operations in his particular area.

4. Para. 12, sub-para (b) draws attention to the possibility of Hydrogen cylinders and packed balloons being carried over in block ships. This is considered most unsatisfactory from a practical point of view, and is a method which would lead to unnecessary wastage of valuable equipment as:-

- (i) There would be insufficient time to unload before the block ships were scuttled.
- (ii) Once the block ships were scuttled, balloons and Hydrogen cylinders would probably be under water, which would have an adverse affect on the balloon fabric and would "rust on" the cylinder head caps.

9 with H.C.
5. In para. 23, heading Port Units it is noted that 21st Army Group have estimated certain requirements for Port Balloon protection. It is considered that all Port Units which may be required for operation 'Overlord' should be sufficiently established with M.T. for purpose of mobility.

✓
6. Para. 26 states that 21st Army Group will be responsible for requesting from A.E.A.F. port protection as required. It is again pointed out that such requests should come through 2nd T.A.F. to A.E.A.F.,

✓
7. It is noted in para. 27, under heading Administration that all Port Squadrons and Flights are provided with sufficient personnel to be self-contained, except for medical services. It is pointed out

Take up with Balloon Comd.
Genl. Command.

N 15277

that the establishment for Port Squadrons includes Medical Nursing Orderlies, but no provision has been made for Port Flights, and as these may operate at some distance from their Squadrons it is considered necessary for one Medical Nursing Orderly to be established on each flight.



.....
Air Vice-Marshal,
Air Officer i/c Administration,
2nd Tactical Air Force.

N 15278

DECLASSIFIED

Authority NND 947020

Allied Expeditionary Air Force

21 A Gp/00/74/30/2/G(Plans)

Reference AEAf/MS 687/Admin Plans dated 4th April, 1944.

1. The following comments and amendments to the draft plan for British balloon protection of beaches, MULBERRIES and ports are forwarded:-

Para 7 line 6 To agree with Appendix 'A', delete "98" and "102" and substitute "95" and "104" respectively.

Para 11 || The phasing in of 60 packed balloons and hydrogen cylinders on D plus 4 has already been arranged by Second British Army.

The system of handling packed balloons and hydrogen is wrong as suggested here. These items will be handled in precisely the same way as any other stores cargo, being bid for by TAF by the appropriate dates, details of the consignment being notified through Service channels and the calling forward and loading being the responsibility of Home Movement Control; the off loading on the Continent will be done as for other stores by Transportation and passed to the dumps in the normal way; RAF Movement Control officers will, of course, watch this traffic in common with the many other items of RAF stores and equipment. For return traffic of units space should be requested from Movements on the far shore. Instructions as to the control of return stores traffic are being issued by Q(M), Headquarters, 21 Army Group.

Second sentence:

After "for this purpose" add "and for topping up of all balloons. "

Para 13 Second Army have phased in the first two vehicles but know nothing of the third. As this is understood to be a reserve, Second Army do not feel justified in including it in their craft allotment at this early stage.

Para 16 Delete "Balloon Command and 21 Army Group" and substitute "Second TAF and Second Army".

Para 18 line 4 Delete "necessary by Second TAF", substitute "agreed between Second TAF and Second Army".

Para 18 line 8 Delete from "Control" to "in high winds" and substitute "Control by hand winch will be necessary on night D/D plus 1 and possibly D plus 1/D plus 2. As soon as practicable control by powered winch will be instituted, owing to the labour involved in hand winching and the fact that it may be impossible to haul down by hand winch the balloons in high winds."

Para 21 The requirement is for a light portable winch to be carried on each Phoenix, Type A1, A2, B1 and B2, as well as on block ships.

Para 25 May the nominations and organisation of squadrons be notified as soon as possible.

Paras 32 & 33 These apply to Balloon Units and the first Port Squadron. Thereafter 21 Army Group is responsible in lieu of Second Army.

Appendix 'B' The figures do not appear to be based on Appendix 'A'. May a revised Appendix be supplied.

2. Please acknowledge receipt on attached AF A16.

HQ 21 Army Group,
No. 1 AFDC,
LONDON, W.1.
11 April 1944.

Copy to:- HQ 21 Army Group;
Q(M), Q(Plans), GHQ AA Tps.

N 15279
General,
Commander-in-Chief.

DECLASSIFIED
Authority NND 947020

39a
TOP SECRET

1322
RECEIVED
17 APR 1944
Hq AEAf
Stafford



38a

E37

From: Headquarters, Air Defence of Great Britain.

To: Headquarters, Allied Expeditionary Air Force,
Norfolk House, St. James' Square, London, W.C.1.

Copy to: Headquarters, Balloon Command.

Date: 10th April, 1944.

Ref: ADGB/TS.36837/Ops.5A.

OPERATION "OVERLORD" - Plan for British Balloon
Protection of Beaches, Mulberries and Ports.

Reference is made to your AEAF/MS.687/Admin.Plans, dated 4th April, 1944, with which is enclosed a draft plan for British balloon protection in respect of Operation "OVERLORD" overseas.

2. In paragraph 24 of the plan, this Headquarters is requested to report on the question of priority of withdrawals of Mark VI balloons deployed in Great Britain for reinforcing Port balloon defences overseas.

3. After careful consideration, the conclusion has been reached that Home Port defensive requirements cannot be anticipated with any degree of accuracy so far ahead, and that a decision of this nature must depend upon the progress of offensive operations.

4. Comments on this proposal will no doubt be passed to you by Headquarters, Balloon Command direct, in their reply to your letter under reference, but it is not expected that there should be any difficulty in withdrawing the Mark VI Balloon Units concerned at short notice for the purpose required. It is, therefore, suggested that the decision should be deferred pending the development of offensive operations.

J.G. Hudson
(J.G. HUDSON)

Air Vice Marshal,
Senior Air Staff Officer,
AIR DEFENCE OF GREAT BRITAIN.

N 15280

SECRET

From:- Organisation Branch, Kestrel Grove
 To:- Admin Plans Branch, Norfolk House
 Ref:- AEAf/S17047/Org 1A
 Date:- 10 April 1944

(37a) 40
 RECEIVED 11 APR 1944
 AEAf
 Admin file 687

Operation "OVERLORD" - Plan for British Balloon Protection of Beaches, MULBERRIES and Ports

1. In reply to your letter AEAf/MS687/Admin Plans dated 4 April 1944, the following comments are made on the First Draft of the British Balloon Plan.

2.

DRAFT PARA NO	COMMENT
<u>BEACH BALLOON FLIGHTS</u>	
Para 6 - Administration	Add words - "After transfer from Balloon Command" between first two words of existing paragraph.
Paras 10 & 11 - Implications of Build-up Rate	The division of responsibility between deflated balloons and inflated balloons is not clear, and Balloon Command are suggesting revised paragraphs in their comments on the draft.
Para 13 - Vehicles	Is the additional 3-tonner Unit required on D + 5 an "A" or "B" vehicle?
<u>MULBERRY BALLOON FLIGHT</u>	
Para 15 - Administration	Balloon Command have advised that the Squadron required is already in existence being numbered 991. If agreed, Org, AEAf will request Air Ministry, O4 to nominate this Squadron HQ for the control of the MULBERRY B Barrage of 60 balloons to be supplied from Nos 56 and 57 Balloon Flights.
Para 16 - Move of Transporting MULBERRY Units	The channel for arranging movement is not clear. Is it to be 21 Army Group through 2nd TAF to Balloon Command, thus implying that 21 Army Group is responsible for the initial call forward?
<u>CONTROL OF BALLOONS</u>	
Para 19 - Responsibility for Bidding	Suggest that "Hydrogen" should be included between words "Equipment and"
Para 21 - Balloons on Phoenix Block Ships	It is not clear who is to supply the winches referred to in the penultimate and last lines. It is presumed that Balloon Command will do this but it should be made clear.
Para 22 - Establishment of Units	See comment at para 15 above
Para 26 - Responsibility for nominating Port requirements	Should not the channel for application for requesting Port protection from AEAf be from 21 Army Group to 2nd TAF and thence to AEAf?
Para 27 - Administration	Suggested that the concluding words "in conjunction with Balloon Command" should be deleted and the words "as advised by Balloon Command" substituted.

N 15281

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 Authority NND 947020

DRAFT PARA NO	COMMENT
X Para 31 - Establishment	It is considered that 2nd TAF should be requested to indicate to which Headquarters (2nd TAF or 85 Group) these Balloon Units should be transferred.

3. *Summary* With regard to the initial equipment and subsequent maintenance of "B" and "P" Balloon Flights and Squadrons, arrangements are practically completed but all the equipment is still in Bomber Command. In order that responsibility for equipment administration can be defined a decision is required on the date on which 2nd TAF will take over the "B" Flights and 85 Group the "P" Squadrons and Flights (see comment above on para 31 of the first draft).

4. It is suggested that the transfers should be carried out at an early date in order that 2nd TAF and 85 Group may familiarise themselves with the equipment and its administration.

E.F. Truscott

E.F. TRUSCOTT
Squadron Leader, RAF
Organisation 1A

N 15282

ops 0
33A

TOP SECRET.

HEADQUARTERS
ALLIED EXPEDITIONARY AIR FORCE
NORFOLK HOUSE, ST. JAMES' SQUARE
LONDON S.W. 1

REF : AEAFF/MS 687 /Admin Plans. DATE: 4 April 1944.

SUBJECT : Operation "OVERLORD" - Plan for British Balloon Protection
of Beaches, MULBERRIES and Ports,
First Draft.

TO :

Headquarters, 21 Army Group	(3)	✓
Headquarters, A.N.C.X.F.	(2)	✓
Headquarters, Balloon Command.	(2)	✓
Headquarters, 2nd T.A.F.	(2)	✓
Headquarters, N.C.E.T.F.	(1)	✓
Headquarters, 85 Group	(1)	✓
Air Ministry, D.G.O.	(1)	
Air Ministry, D.W.O.	(1)	✓
Headquarters, A.E.A.F. (Air Plans)	(1)	

1. Attached hereto are copies, in quantities indicated above, of the first draft for the plan of British Balloon Protection of Beaches, MULBERRIES and Ports.

2. Much of the subject matter included in this draft plan has been discussed between interested parties and verbal agreement reached. Appendix "A" may therefore be taken as a firm statement of requirements and used for provisioning purposes.

3. It is requested that comments on this draft plan may be submitted to this Headquarters not later than 09.00 hours, Tuesday, 11th April, 1944.

For Air Officer i/c Administration,

M. S. Shapcott

M. S. SHAPCOTT,
Group Captain,
Admin 1

Copies for Information:

Air Ministry,	D.G.E. (Eq. Plans)
Headquarters,	A.E.A.F., D/A.C.F.
Headquarters	A.E.A.F., Ops 6. ✓

A. E. A. F. H. Q.	
SECRET REGISTRY	
To:	5 Opob
WITH	ENCLOSURES
RECEIVED	- 5 APR 1944
RELEVANT FIL & LATEST TRANSIT	
FILE No.
TO	ON

N 15283

FIRST DRAFT.

OPERATION "OVERLORD" - PLAN FOR BRITISH BALLOON PROTECTION OF BEACHES, MULBERRYES AND PORTS.

INTRODUCTION.

1. The object is to provide V.L.A. balloons on the Continent flying at 2,000 ft. for the protection of:-
 - (a) Assault Beaches and beach maintenance areas.
 - (b) MULBERRY B.
 - (c) Various ports as the Operation develops.

METHOD OF PROTECTION.

Beaches.

2. Beaches will be protected from D Day and crews will bring in their balloons flying as soon as possible after the Assault and deploy forthwith.

MULBERRY.

3. Although it will be possible in the early stages to provide a limited degree of protection to the MULBERRY area from beach resources, the main MULBERRY protection cannot be brought in until D + 4, when a Coaster will carry across uninflated balloons and hydrogen, so that a barrage of 60 balloons can be deployed immediately by personnel who will have been brought in on D + 3.

Ports.

4. Port protection will be provided as the Operation progresses. It will be the responsibility of 21st Army Group to request balloons on the scale required from A.E.A.F. All port units are designed so as to be self-contained, and port balloons will always be transported deflated in craft arranged for by 21st Army together with the necessary hydrogen, ancillary and administrative equipment and personnel.

BEACH BALLOON UNITS.

Requirements.

5. ^{3 sqd 60} 6 Units of 30 balloons each will be transported to the Continent on D Day. These will be allocated as follows:-

- 956 — Nos. 50 and 53 Balloon Units to No. 4 Beach Squadron
- 954 — Nos. 51 and 52 Balloon Units to No. 2 Beach Squadron
- 950 — Nos. 54 and 55 Balloon Units to No. 4 Beach Squadron

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Administration.

6. Balloon Units will be administered by their appropriate Beach Squadron, and Second Tactical Air Force will arrange for their rationing and necessary medical services from the Army.

a 9/2 Balloon will be established

Method of transporting.....

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for over 100 ft
W. H. L. Mission
U.S. Navy
Army
Marine
2000

Method of transporting balloons.

7. It has not been possible, owing to Radar objections, to obtain permission to fly balloons on D Day on any craft reaching the lowering position before H - 15. As L.C.T. and L.S.T. are the only suitable craft on which balloons can be transported flying, the total number of balloons which can be carried over on D Day is 200, allowing for the Radar restriction, comprising 98 on the first tide and 102 on the second. This is sufficient to provide for 180 balloons together with their crew of 2 and one light portable winch per balloon, plus 20 unarmed balloons flying from short stay which will be used to replace casualties suffered on the voyage. A.N.C.X.F. has instructed N.C.E.T.F. that L.S.T. will carry a R.A.F. balloon in addition to the Naval balloon which is carried for their own protection.

Build-up.

8. After D Day balloons will be flown across channel on every L.S.T. and on 2/3rds of the L.C.T. sailing from this country to replace casualties. It has been decided by A.N.C.X.F. that the remaining 1/3rd of the L.C.T.'s must carry a Naval balloon for their own protection on the homeward voyage. At Appendix 'A' is a chart showing the total number of craft available for deployment and build-up, together with their dates and ports of sailing as far as is known at present. The variations in these dates and ports are not expected to be material.

Casualty Rate.

9. It is estimated that casualties to balloons are likely to occur on the following scale:-

- (a) While flying during transit 20%
- (b) While deployed during first seven days 30% daily
- (c) While deployed thereafter 15% daily

At Appendix 'B' is a schedule showing the number of balloons which can be expected to be flying up to the time when the full extent of Beach and MULBERRY protection can be built up by the sole process of flying balloons across channel, allowing for the fact that 60 Balloons for MULBERRY are being brought in uninflated on D + 4 (para. 16 refers).

Implications of build-up rate.

10. It will be apparent from a study of Appendix 'B' that the full number of 180 balloons on the beaches cannot be built up by the ferrying method by D + 4, and that there will be times when the number of balloons flying is reduced to about 100. There is no method of obtaining a greater supply of balloons before D + 4, and the relatively sparse protection at times in the early stages will therefore have to be accepted. It is, however, considered that if balloons can be maintained to the minimum extent shown at Appendix 'B', the barrage will be sufficient to provide an adequate deterrent effect to low flying aircraft.

11. It is most desirable to raise the barrage to the full strength of 180 balloons for Beaches and 60 for MULBERRY as rapidly as possible, and Second Tactical Air Force will therefore arrange the "phasing in" on D + 4 and thereafter as necessary sufficient packed balloons and hydrogen to raise the daily total from that shown in Appendix 'B' to 240. U.A.F. will be responsible for informing Balloon Command of the number of balloons and amount of hydrogen necessary for this purpose. Balloon Command will then be responsible for delivering the necessary supplies to the nominated port, when second T.A.F. will take over responsibility for the loading and, in due course, unloading on the Continent. It will be necessary for the Balloon Staff Officer on the Beaches to make most careful arrangements for the return of empty hydrogen cylinders to this country, as the entire success of the hydrogen supply chain depends on this being carried out efficiently.

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/12..... With a view

12. With a view to increasing further the rate of the build-up, two further possibilities are being explored: *by 21st Army - PNCYC & HQ Balloon Command*

- (a) Whether it is practicable to carry over a balloon inflated and flying from short stay in addition to the one already flown for craft protection on Merchant vessels which will be sailing from this country to the Continent.
- (b) Whether a quantity of hydrogen and packed balloons can be carried over on block ships.

As both these possibilities are uncertain, they have not been taken into consideration when estimating the hydrogen and packed balloon requirements mentioned in para. 11 above.

Vehicles.

13. Two 3-ton servicing vehicles per Balloon Unit will be "phased in" on the second tide of D + 1 and one additional 3-tonner per Unit on D + 5. *W - soon after that date as possible.*

MULBERRY BALLOON UNIT.

Requirements.

14. 60 balloons are required for protection of MULBERRY B. and these will be supplied from Nos. 56 and 57 Units of 30 balloons each. *B. Balloon flights*

Administration.

15. As no suitable R.A.F. Unit exists to which these units can be attached, a small Squadron organisation will be provided which will be responsible for their administration. *by No 991 B Balloon Sq command*

Method of transporting MULBERRY Units.

16. The Balloon and Squadron Headquarters personnel, together with the Unit vehicles, will be "phased in" on D + 3. Packed balloons, hydrogen, hydrogen personnel and ancillary equipment to the necessary scale agreed between Balloon Command and 21 Army Group will be transported on a suitable Coaster and unloaded through the MULBERRY organisation on D + 4. *2 - 21st Army*

Casualty Rate.

17. As for Beach Balloons, see para. 9 above.

CONTROL OF BALLOONS.

18. Control of balloons will be vested in the A.A.D.C. of the area protected and all applications in respect of controls will be made to him. Lanes for aircraft approaching Landing Strips will be arranged as necessary by Second T.A.F. when the detailed siting of balloons is being decided. It must be realised that controls can only be implemented on a pre-arranged plan. Inter-site communications do not exist except by runner and the bedding of a barrage by hand winch cannot be accomplished in less than an hour from the time of receipt of order at sites. Control by hand winch is in any case undesirable, owing to the labour involved and the fact that it may be impossible to haul down the balloons in high winds. The normal method is for the balloons to be hauled down by power provided by the servicing tenders which move from site to site for the purpose, one vehicle servicing 15 balloons. The time taken to ground a barrage will vary between 1 1/2 and 2 1/2 hours according to the difficulty in getting the vehicle round the circuit of sites. Balloons cannot be bedded when flown from

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/craft, and it has....

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craft, and it has been accepted by 2nd Army that balloons on Phoenix and Block Ships can be considered close-hauled when flying at a height not exceeding 100 ft.

Responsibility for Bidding.

19. The "phasing in" of all balloon equipment, ^{hydrogen} and personnel will be the responsibility of 2nd Army in consultation with Second T.A.F.

Density of protection.

20. Theoretical balloon siting has been carried out for the Beaches, Beach maintenance and MULBERRY areas, and the full scale of protection involves a distance of 300 to 350 yards between each balloon. It has been found in this country that siting of balloons at intervals of 500 or more yards provides an adequate deterrent to low flying, but the difficulties of maintaining a barrage at anything like full strength under the conditions anticipated have been taken into consideration when the rather dense siting mentioned above was recommended.

Balloons on Phoenix and Block Ships.

21. Balloons will be flown on Phoenix and Block Ships for protection of MULBERRY and COCSEBERRIES. These balloons will be supplied from the 240 balloons provided for Beach and MULBERRY protection. The Navy has accepted responsibility for ferrying inflated balloons and balloon personnel from the beaches to provide for initial deployment and subsequent casualty replacements. All block ships are carrying over a light portable winch and a similar winch will be taken out from the shore and installed on each Phoenix flying a balloon.

Arrangements between 21 AFM & Balloon Command

Establishment of Units.

22. Beach and MULBERRY ^{Squadrons} units are established on Balloon Command and will be transferred to the establishment of Second T.A.F. prior to units entering the concentration area. It will be necessary for A.E.A.F. to apply for the establishment on Balloon Command of the small Squadron Headquarters Unit for MULBERRY mentioned in para. 15 above.

Squadron

PORT UNITS.

Requirement.

23. 21 Army Group have estimated requirements for port protection as follows:-

<u>Approx. date of disembarkation.</u>	<u>No. of Balloons.</u>
D + 3 (to be confirmed between T.A.F. and Second Army)	25
D + 20	15
D + 50	45
D + 70	10
D + 70	15
D + 80	50
D + 90	50

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Not only must the dates mentioned be considered highly speculative and

/subject to very

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subject to very material alteration, but it is anticipated that the requirement will almost certainly be increased as the Operation progresses.

Existing resources.

24. Balloon Command have formed for overseas ports requirements 5 Squadrons containing 11 flights, totalling 190 balloons. In addition 3 Squadrons, comprising 9 flights and 165 balloons are being deployed to ports in this country for protection during the early stages of the "OVERLORD" Operation. Any balloons, therefore, in excess of 190 required on the Continent can only be provided in the following ways:-

- (a) By withdrawing balloons deployed at home ports.
- (b) When the stage has been reached at which Beach Balloon Units are no longer required, by withdrawing them to this country and re-forming them on a port basis.

As requested by A.C.P.F. in due course of the appropriate time.
A.D.G.B. will consider and report on the priority of withdrawals from this country and the estimated time in terms of D + at which such withdrawals can be carried out.

Organisation of resources.

25. Port Units are able to operate in multiples of 5 balloons. In view of the impossibility of giving a reliable estimate of the tasks or the dates of deployment, it is necessary that Port Balloon Formations be maintained on the most elastic possible basis, so that they may be employed at short notice on any task in any required numbers.

Responsibility for Nominating Port Requirements.

26. 21 Army Group will be responsible for requesting from A.E.A.F. port protection as it is required, and for providing suitable transport to carry the Port Balloon organisation overseas.

through 21 A.F.

Administration.

27. All port Squadrons and flights are provided with sufficient personnel to be self-contained except for medical services. These services, petrol, oil and all normal maintenance equipment would be supplied as arranged by Second T.A.F. in conjunction with Balloon Command.

Hydrogen supplies.

28. It is impossible to bring Port Balloons from this country inflated, owing to the impracticability of carrying inflated balloons to their deployment area from points of disembarkation. For port protection, therefore, it is essential to bring hydrogen cylinders or a hydrogen plant and deflated balloons. Loading schedules for hydrogen cylinders and hydrogen plants for Balloon Port Units of the various sizes have already been supplied to 21 Army Group, who will be responsible for arranging with Balloon Command for initial supply of hydrogen cylinders to ports and for transport of hydrogen plants and necessary chemicals when it is considered desirable to produce hydrogen in deployment areas.

Control of Balloons.

29. Control will be vested in the A.A.D.G. of the protected port. The measure of control which will be possible is:-

- (a) Grounding of balloons from 2,000 ft. will take 1 - 1 1/2 hours approximately.

N 15288

(b. To fly

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(b) To fly balloons from grounded position to 2,000 ft. will take $\frac{3}{4}$ to 1 hour approximately. In cases where balloons are flown from breakwaters, piers or buoys, it is probable that in some cases they could not be closehauled within any period acceptable to the controlling authority.

Casualty Rate.

30. Balloon casualties are in the main caused by A.A. shell fire and breakaways through weather conditions. Very little reliable data from active operations in ports is available, but it seems reasonable to assume that casualties will be higher and replenishment more difficult immediately after deployment, and that casualties may decline sharply thereafter. The following estimate is based on the above factors:-

X + 1 to X + 3	=	50% daily
X + 4 to X + 9	=	20% daily
X + 9 to X + 17	=	12½% daily
X + 17 to X + 31	=	7% daily
X + 31 onwards	=	5% daily

Establishment.

31. Port Units are established on Balloon Command and will be transferred, prior to embarkation, to the establishment of Second T.A.F., 83 or 85 Group, whichever is in control of the base area at the time the Unit is embarked from this country.

Refer heading

Summary of Responsibility.

32. Detailed planning covering the "phasing in" of balloons, equipment and personnel together with the deployment on the Continent will be carried out between Second T.A.F. and Second Army, *thence 21AG.*

33. Detailed planning covering organisation and requirements in U.K. for producing balloons, equipment and personnel at ports as required, will be carried out by Balloon Command in consultation with Second T.A.F. *indirectly* Second Army and H.C.S.I.F.

34. Estimates of overall requirements, such as balloons, balloon equipment, hydrogen and transport, are the responsibility of Balloon Command who will make arrangements direct with the appropriate departments of Air Ministry.

N 15289

ARAF/TS. 22254/Ops. 6C.
3rd April, 1944.

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L.S.T. and L.C.T. available for carriage of R.A.F. Balloons.These figures must be treated as approximate and liable to alteration.

<u>Arriving on 1st Tide</u>	<u>Loads at</u>	<u>Loads on</u>	<u>Force.</u>
L.C.T. 20	Gosport or Stokes Bay	D - 2	J.
L.C.T. 30	Newhaven	D - 2	S.
L.C.T. 20	Shoreham	D - 2	S.
L.S.T. 3	Southampton	D - 3	J.
L.S.T. 9	Southampton	D - 2	J.
L.S.T. 5	Gosport	D - 4	S.
L.S.T. 3	Southampton	D - 4	G.
L.S.T. 5	Southampton	D - 3	G.
<u>95</u>			

Arriving on 2nd Tide.

L.C.T. 50	Tilbury	D - 2	L.
L.S.T. 12	Southampton	D - 2	J.
L.S.T. 1	Gosport	D - 4	S.
L.S.T. 11	Gosport	D - 3	S.
L.S.T. 12	Southampton	D - 3	G.
L.S.T. 16	Tilbury	D - 3	L.
<u>104</u>			

Arriving on 3rd Tide.

L.S.T. 5	Gosport	D - 2	S.
L.S.T. 2	Tilbury	D - 3	L.
L.S.T. 5	Tilbury	D - 2	L.
L.S.T. 22	Felixstowe	D - 2	L.
<u>34</u>			

After D. day Sailings of craft carrying Balloons will be roughly as follows;

<u>Day</u>	<u>Type</u>	<u>Loads at</u>	<u>No.</u>	<u>Type</u>	<u>Loads at</u>	<u>No.</u>
D + 1	L.C.T.	Newhaven	14	L.S.T.	Gosport	12
		Gosport	<u>97</u>		Southampton	9
			111			<u>21</u>
D + 2	L.C.T.	Nil	Nil	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	<u>13</u>
D + 3	L.C.T.	Gosport	32	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	<u>12</u>
D + 4	L.C.T.	Gosport	32	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	<u>10</u>
					<u>28</u>	

Thereafter as D + 4.

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L.S.T. and L.C.T. available for carriage of R.A.F. Balloons.

These figures must be treated as approximate and liable to alteration.

<u>Arriving on 1st Tide</u>	<u>Loads at</u>	<u>Loads on</u>	<u>Force.</u>
L.C.T. 20	Gosport or Stokes Bay	D - 2	J.
L.C.T. 30	Newhaven	D - 2	S.
L.C.T. 20	Shoreham	D - 2	S.
L.S.T. 3	Southampton	D - 3	J.
L.S.T. 9	Southampton	D - 2	J.
L.S.T. 5	Gosport	D - 4	S.
L.S.T. 3	Southampton	D - 4	G.
L.S.T. 5	Southampton	D - 3	G.
<u>95</u>			

Arriving on 2nd Tide.

L.C.T. 50	Tilbury	D - 2	L.
L.S.T. 12	Southampton	D - 2	J.
L.S.T. 1	Gosport	D - 4	S.
L.S.T. 11	Gosport	D - 3	S.
L.S.T. 12	Southampton	D - 3	G.
L.S.T. 18	Tilbury	D - 3	L.
<u>106</u>			

Arriving on 3rd Tide.

L.S.T. 5	Gosport	D - 2	S.
L.S.T. 2	Tilbury	D - 3	L.
L.S.T. 5	Tilbury	D - 2	L.
L.S.T. 22	Polixstone	D - 2	L.
<u>34</u>			

After D. day Sailings of craft carrying Balloons will be roughly as follows:

<u>Day</u>	<u>Type</u>	<u>Loads at</u>	<u>No.</u>	<u>Type</u>	<u>Loads at</u>	<u>No.</u>
D + 1	L.C.T.	Newhaven	14	L.S.T.	Gosport	12
		Gosport	<u>97</u>		Southampton	<u>9</u>
			<u>111</u>			<u>21</u>
D + 2	L.C.T.	Nil	Nil	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	<u>13</u>
						<u>21</u>
D + 3	L.C.T.	Gosport	32	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	<u>12</u>
						<u>30</u>
D + 4	L.C.T.	Gosport	32	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	<u>10</u>
						<u>28</u>

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Thereafter as D + 4.

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APPENDIX 'B'

Day.	No. of balloon craft arriving.	20% casualties on voyage	No. of balloons arriving.	No. of balloons available after arrival of fresh supply.	Casualties during succeeding 24 hours at 30% daily	No. remaining after casualties
D	200	40	160	NA	48	112
D + 1	29	6	23	135	40	95
D + 2	69	14	55	150	45	105
D + 3	73	15	58	163	49	114
D + 4	53	16	103	217	65	152
		← + 60 for MULBERRY				
D + 5	68	14	54	206	62	144
D + 6	67	13	54	198	60	138
D + 7	67	13	54	194	58	136
Casualties now calculated at 15% daily						
D + 8	67	13	54	190	20	162
D + 9	67	13	54	216	32	184
D + 10	67	13	54	238	36	204
D + 11	45	9	36	240	36	204
et seq.						

N 15292

32a

L.S.T. and L.C.T. available for carriage of R.A.F. BalloonsThese figures must be treated as approximate
and liable to alteration.

<u>Arriving on 1st Tide.</u>	<u>Loads at</u>	<u>Loads on</u>	<u>Force.</u>
L.C.T. 20	Gosport or Stokes Bay	D - 2	J.
L.C.T. 30	Newhaven	D - 2	S.
L.C.T. 20	Shoreham	D - 2	S.
L.S.T. 3	Southampton	D - 3	J.
L.S.T. 9	Southampton	D - 2	J.
L.S.T. 5	Gosport	D - 4	S.
L.S.T. 3	Southampton	D - 4	G.
L.S.T. 5	Southampton	D - 3	G.
<u>95</u>			
====			

<u>Arriving on 2nd Tide.</u>	<u>Loads at</u>	<u>Loads on</u>	<u>Force.</u>
L.C.T. 50	Tilbury	D - 2	L.
L.S.T. 12	Southampton	D - 2	J.
L.S.T. 1	Gosport	D - 4	S.
L.S.T. 11	Gosport	D - 3	S.
L.S.T. 12	Southampton	D - 3	G.
L.S.T. 18	Tilbury	D - 3	L.
<u>104</u>			
====			

<u>Arriving on 3rd Tide.</u>	<u>Loads at</u>	<u>Loads on</u>	<u>Force.</u>
L.S.T. 5	Gosport	D - 2	S.
L.S.T. 2	Tilbury	D - 3	L.
L.S.T. 5	Tilbury	D - 2	L.
L.S.T. 22	Felixtows	D - 2	L.
<u>34</u>			
====			

After D. day Sailings (of craft carrying Balloons) will be roughly as follows.

<u>Day</u>	<u>Type</u>	<u>Loads at.</u>	<u>No.</u>	<u>Type</u>	<u>Loads at.</u>	<u>No.</u>
D + 1	L.C.T.	Newhaven	14	L.S.T.	Gosport	12
		Gosport	97		Southampton	9
			<u>111</u>			<u>21</u>
			====			====
D + 2	L.C.T.	Nil	Nil	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	13
						<u>31</u>
						====
D + 3	L.C.T.	Gosport	32	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	12
						<u>30</u>
						====
D + 4	L.C.T.	Gosport	32	L.S.T.	Tilbury	6
					Gosport	12
					Southampton	10
						<u>28</u>
						====

Thereafter as D + 4

N 15293

LOOSE MINUTE.

30A

W/Cdr. Admin. Plans.
Norfolk House.

Attached is a draft entitled "Operation 'OVERLORD' -
Plan for British Balloon Protection, Beaches, Mulberries
and Ports".

2. It has been seen by the Operations Branch at
Kestrel Grove and I presume you will be passing it to
Operations Plans at Norfolk House after you have made
any amendments and additions you desire.

lew

L. C. LAKE.
Squadron Leader.
Ops. 6C.

3rd. April, 1944.
AEAF/TS. 22254/Ops. 6C.

N 15294

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Authority NND 947020

BIGOTTOP SECRET.OPERATION "OVERLORD" - PLAN FOR BRITISH BALLOON PROTECTION,
BEACHES, MULBERRY'S AND PORTS.INTRODUCTION.

1. The object is to provide V.L.A. balloons on the Continent flying at 2,000 ft. for the protection of:-
 - (a) Assault Beaches and beach maintenance areas
 - (b) MULBERRY B
 - (c) Various ports as required as the Operation develops.

METHOD OF PROTECTION.Beaches.

2. Beaches will be protected from D Day and crews will bring in their balloons flying as soon as possible after the Assault and deploy forthwith.

MULBERRY.

3. Although it will be possible in the early stages to provide a limited degree of protection to the MULBERRY area from beach resources, the main MULBERRY protection cannot be brought in until D + 4, when a Coaster will carry across uninflated balloons and hydrogen, so that a barrage of 60 balloons can be deployed immediately by personnel who will have been brought in on D + 3.

Ports.

4. Port protection will be provided as the Operation progresses. It will be the responsibility of 21st Army Group to request balloons on the scale required from A.E.A.F. All port units are designed so as to be self-contained, and port balloons will always be transported in craft ^{deflating} ~~packed~~ ^{arranged for} by 21st Army ~~port~~ together with the necessary hydrogen, ancillary and administrative equipment and personnel.

N 15295

BEACH BALLOON UNITS.Requirements.

5. 6 Units of 30 balloons each will be transported to the Continent on D Day. These will be allocated as follows:-

/Nos. 50 and 53 Balloon Units

Nos. 50 and 53 Balloon Units to No. 1 Beach Squadron

Nos. 51 and 52 Balloon Units to No. 2 Beach Squadron

Nos. 54 and 55 Balloon Units to No. 3 Beach Squadron

Administration.

6. Units will be administered by their appropriate Beach Squadron, who will make arrangements through Second Tactical Air Force for their rationing and necessary medical services from the Army.

Method of transporting balloons.

7. It has not been possible, owing to Radar objections, to obtain permission to fly balloons on D. Day on any craft reaching the lowering position before H - 15. As L.C.T. and L.S.T. are the only suitable craft on which balloons can be transported flying, the total number of balloons which can be carried over from D Day is 200, ^{allowing for the Radar restriction,} comprising 98 on the first tide and 102 on the second. This is sufficient to provide for 180 balloons together with their crew of 2 and one ^{light} ~~entirely~~ portable winch per balloon, plus 20 unmanned balloons flying from short stay which will be used to replace casualties on the voyage. ^{ANCF has given instructions to N.C.E.T.F} ~~It has been decided by ANCF that L.S.T. shall carry~~ a R.A.F. balloon in addition to the Naval balloon which is carried for their own protection.

Build-up.

8. After D. Day balloons will be flown across channel ~~to replace~~ ^{to replace casualties.} ~~on every L.S.T. and on 2/3rds of the L.C.T. sailing from this country.~~ It has been decided by ANCF that the remaining 1/3rd of the L.C.T.'s must carry a Naval balloon for their own protection on the homeward voyage. At Appendix 'A' is a chart showing the total number of craft available for deployment and build-up, together with their dates and ports of sailing as far as is known at present. The variations in these dates and ports are not expected to be material.

Casualty Rate.

9. It is estimated that casualties to balloons are likely to occur on the following scale:-

- (a) While flying during transit 20%

N 15296

/(b)

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Authority NND 947020

(b) While deployed during first seven days 30% daily

(c) While deployed thereafter 15% daily

At Appendix 'B' is a schedule showing the number of balloons which can be expected to be flying up to the time when the full extent of Beach and MULBERRY protection can be built up by the sole process of flying balloons across channel, *allowing for the fact that 60 balloons for mulling are being brought in uninflected on D+4 (para 16 refer).*
Implications of build-up rate.

10. It will be apparent from a study of Appendix 'B' that the full number of 180 balloons on the beaches cannot be built up by the ferrying method by D + 4, and that there will be times when the number of balloons flying is reduced to about 100. There is no method of obtaining a greater supply of balloons before D + 4, and the relatively sparse protection at times in the early stages will therefore have to be accepted. It is, however, considered that if balloons can be maintained to the minimum extent shown at Appendix 'B', the barrage will be sufficient to provide an adequate deterrent effect to low flying aircraft.

11. It is most desirable to raise the barrage to the full strength of 180 balloons for Beaches and 60 for MULBERRY as rapidly as possible, and Second Tactical Air Force will therefore arrange the "phasing-in" on D + 4 and thereafter as necessary sufficient packed balloons and hydrogen to raise the daily total from that shown in Appendix 'B' to 240. T.A.F. will be responsible for informing Balloon Command of the number of balloons and amount of hydrogen necessary for this purpose. Balloon Command will then be responsible for delivering the necessary supplies to the nominated port, when Second T.A.F. will take over responsibility for the loading and, in due course, unloading on the Continent. It will be necessary for the Balloon Staff Officer on the Beaches to make most careful arrangements for the return of empty hydrogen cylinders to this country, as the entire success of the hydrogen supply chain depends on this being carried out efficiently.

12. With a view to increasing further the rate of the build-up, two further possibilities are being explored:-

N 15297

- (a) Whether it is practicable to carry over a balloon inflated and flying from short stay in addition to the one already flown for craft protection on Merchant vessels which will be

/sailing

sailing from this country to the Continent.

- (b) Whether a quantity of hydrogen and packed balloons can be carried over on block ships.

As both these possibilities are uncertain, they have not been taken into consideration when estimating the hydrogen and packed balloon requirements mentioned in para. 11 above.

Vehicles.

13. Two 3-ton servicing vehicles per Balloon Unit will be "phased in" on the second tide of D + 1 and one additional 3-tonner per Unit on D + 5.

MULBERRY BALLOON UNIT.

Requirements.

14. 60 balloons are required for protection of MULBERRY B. and these will be supplied from Nos. 56 and 57 Units of 30 balloons each.

Administration.

15. As no suitable R.A.F. Unit exists to which these units can be attached, a small Squadron organisation will be provided which will be responsible for their administration.

Method of transporting MULBERRY Units.

16. The Balloon and Squadron Headquarters personnel, together with the Unit vehicles, will be "phased in" on D + 3. Packed balloons, hydrogen, ~~hydrogen personnel~~ and ancillary equipment to the necessary scale agreed between Balloon Command and 21 Army Group will be transported on a suitable Coaster and unloaded through the MULBERRY organisation on D + 4.

Casualty Rate.

17. As for Beach Balloons, see para. 9 above.

N 15298

CONTROL OF BALLOONS.

18. Control of balloons will be vested in the A.A.D.C. of the area protected and all applications in respect of controls will be made to him. Lanes for aircraft approaching Landing Strips will be arranged as necessary by Second T.A.F. when the detailed siting of balloons is being decided. It must be realised that controls can only be implemented on a pre-arranged

/plan.

plan. Inter-site communications do not exist except by runner and the bedding of a barrage by hand winch cannot be accomplished in less than an hour, Control by hand winch is in any case undesirable, owing to the labour involved and the fact that it may be impossible to haul down the balloons in high winds. The normal method is for the balloons to be hauled down by ^{power provided by} the flexible drive ~~on~~ the servicing tenders which move from ~~side~~ ^{Side} to ~~side~~ ^{Side} for the purpose, ~~allowing for~~ one vehicle servicing 15 balloons. The time taken to ground a barrage will vary between 1½ and 2½ hours according to the difficulty in getting the vehicle round the circuit of sites. Balloons cannot be bedded when flown from craft, and it has been accepted by 2nd Army that balloons on Phoenix and Block Ships can be considered close-hauled when flying at a height not exceeding 100 ft.

Responsibility for Bedding.

19. The "phasing in" of all balloon equipment and personnel will be the responsibility of 2nd Army in consultation with Second T.A.F.

Density of protection.

20. Theoretical balloon siting has been carried out for the Beaches, Beach maintenance and MULBERRY areas, and the full scale of protection involves a distance of 300 to 350 yards between each balloon. It has been found in this country that siting of balloons at intervals of 500 or more yards provides an adequate deterrent to low flying, but the difficulties of maintaining a barrage at anything like full strength under the conditions anticipated have been taken into consideration when the rather dense siting mentioned above was recommended.

Balloons on Phoenix and Block Ships.

21. Balloons will be flown on Phoenix and Block Ships for protection of MULBERRY and GOOSEBERRIES. These balloons will be supplied from the 240 balloons provided for Beach and MULBERRY protection. The Navy has accepted responsibility for ferrying inflated balloons and balloon personnel from the beaches to provide for initial deployment and subsequent casualty replacements. All block ships are carrying over a light portable winch and a similar winch will be taken out from the shore and installed on each Phoenix flying a balloon.

Establishment of Units.

22. Beach and MULBERRY Units are established on Balloon Command and will be transferred to the establishment of Second T.A.F. ^{prior to} ~~the~~

N 15299

/Units

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Units enter ^{ing} the concentration area. It will be necessary for ABAF to apply for the establishment on Balloon Command of the small Squadron Headquarters Unit ~~from~~ MULBERRY mentioned in para. 15 above.

PORT UNITS.

Requirement.

23. 21 Army Group have estimated requirements for port protection as follows:-

<u>Port.</u>	<u>Approx. date of disembarkation.</u>	<u>No. of Balloons.</u>
(a) Port on Bessin	D + 8 (to be confirmed between T.A.F. and Second Army)	25
(b) Caen	D + 20	15
(c) Mulberry 'A'	D + 50	45
(d) Trouville	D + 70	10
(e) Honfleur	D + 70	15
(f) Rouen	D + 80	50
(g) Le Havre	D + 90	50
		<u>210</u>

Not only must the dates mentioned be considered highly speculative and subject to very material alteration, but it is anticipated that the requirement will almost certainly be increased as the Operation progresses.

Existing resources.

24. Balloon Command have formed for overseas ports requirements 5 Squadrons containing 11 flights, totalling 190 balloons. In addition 3 Squadrons, ^{comprising} 9 flights and 165 balloons are being deployed to ports in this country for protection during the early stages of the "OVERLORD" Operation. Any balloons, therefore, in excess of 190 required on the Continent can only be provided in the following ways:-

- (a) By withdrawing balloons deployed at base ports.
- (b) ^{When} ~~the~~ stage has been reached ^{at which} ~~the~~ Beach Balloon Units are no longer required, by withdrawing them to this country and re-forming them on a ^{port} ~~beach~~ basis.

N 15300

A.D.G.B. will consider and report on the priority of withdrawals from this country and the estimated time in terms of D + at which such withdrawals can be carried out.

Organization of resources.

25. Port Units are able to operate in multiples of 5 balloons. In view of the impossibility of giving a reliable estimate of the tasks or the dates of deployment, it is necessary that Port Balloon Formations be maintained on the most elastic possible basis, so that they may be employed at short notice on any task in any required numbers.

Responsibility for ~~arranging~~ Nominating Port Requirements

26. 21 Army Group will be responsible for requesting from ARAF port protection as it is required, and for ~~providing~~ ^{arranging} suitable transport to carry the Port Balloon organisation overseas.

Administration.

27. All port Squadrons and flights are provided with sufficient personnel to be self-contained except for medical services. These services, petrol, oil and all normal maintenance equipment would be supplied as arranged ^{by} ~~by~~ Second T.A.F. in conjunction with Balloon Command.

Hydrogen supplies.

28. It is impossible to bring Port Balloons from this country inflated, owing to the impracticability of carrying inflated balloons to their deployment area from points of disembarkation. For port protection, therefore, it is essential to bring hydrogen cylinders or a hydrogen plant and deflated balloons. Loading schedules for hydrogen cylinders and hydrogen plants for Balloon Port Units of the various sizes have already been supplied to 21 Army Group, who will be responsible for arranging with Balloon Command for initial supply of hydrogen cylinders to ports and for transport of hydrogen plants and necessary chemicals when it is considered desirable to ~~operate this method of~~ ^{produce} hydrogen production in deployment areas.

Control of Balloons.

29. Control will be vested in the A.A.D.C. of the protected port. The measure of control which will be possible is :-

- (a) Grounding of balloons from 2,000 ft. will take 1 - 1½ hours approximately.
- (b) To fly balloons from grounded position to 2,000 ft. will take ½ to 1 hour approximately. In cases where balloons

N 15301

/are

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are blown from breakwaters, piers or buoys, it probable that they could ^{is} ^{in some cases} not be ~~grounded~~ ^{clashed} within any period acceptable to the controlling authority.

Casualty Rate.

30. Balloon casualties are in the main caused by A.A. shell fire and breakaways through weather conditions. Very little reliable data from active operations in ports is available, but it seems reasonable to assume that casualties will be higher and replenishment more difficult immediately after deployment, and that casualties may decline sharply thereafter. The following estimate is based on the above factors:-

- X + 1 to X + 3 = 50% daily
- X + 4 to X + 9 = 20% daily
- X + 9 to X + 17 = 12½% daily
- X + 17 to X + 31 = 7% daily
- X + 31 onwards = 5% daily

Establishment.

31. Port Units ^{are} ~~the~~ ^{8d} establishment on Balloon Command ^{and} will be transferred, ^{prior to embarkation,} [^] to the establishment of Second T.A.F., 85 or 85 Group, whichever is in control of the base area at the time the Unit is embarked from this country.

N 15302

APPENDIX 'B'

Day.	No. of balloons embarked.	20% casualties on voyage.	No. of balloons arriving.	No. of balloons available after arrival of fresh supply.	Casualties during succeeding 24 hours at 30% daily.	No. remaining after casualties.
D	200	40	160	NA	48	112
D + 1	29	6	23	135	40	95
D + 2	69	14	55	150	45	105
D + 3	73	15	58	163	49	114
D + 4	53	43	103	217	65	152
		+ 60 for MULBERRY				
D + 5	68	14	54	206	62	144
D + 6	67	13	54	198	60	138
D + 7	67	13	54	194	58	136
Casualties now calculated at 15% daily						
D + 8	67	13	54	190	28	162
D + 9	67	13	54	216	32	184
D + 10	67	13	54	238	36	204
D + 11	45	9	36	240	36	204
et seq.						

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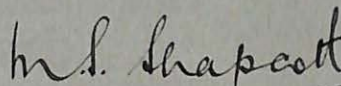
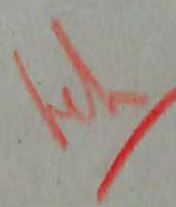
N 15303

Appendix A awaits from A.N.C.X.F.
 Draft passed by Law to his Com. Trinder. 3 April 44

TOP SECRETBALLOONSOps. 6 (c)H.Q., A.E.A.F.,Kestrel Grove.

(For the attention of S/L. Lake)

1. Further to conversation of today's date between Group Captain Shapcott and Squadron Leader Lake, attached herewith copy of A.N.C.X.F. letter No. X/0885/3, dated 28 March, 1944, regarding the distance at which balloons flown at 100 feet are liable to be detected by enemy Radar, and setting out the number of balloons which can be landed on the first and second tides of D Day.

1 April 1944AEAF/TS 687/Admin PlansGroup CaptainAdmin.1.


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N 15304

COPY

276

TOP SECRET

Office of Allied Naval Commander,
Expeditionary Force,
c/o Admiralty,
LONDON. S.W.1.

No. X/0885/3.

28th. March, 1944.

SENIOR AIR STAFF OFFICER,
Allied Expeditionary Air Force.

(Copy to:-

Balloon Command, 2nd Tactical Air
Force (by request.))

BALLOONS.

With reference to para. 2 of the minutes forwarded under cover of AEAFF/MS 687/Admin Plans of 21st March, 1944, an examination has been made of the distance at which balloons flown at 100 ft are liable to be detected by enemy Radar. This is now estimated to be about 29 miles, the distance varying with the height of the Radar Station.

2. In these circumstances it is not considered prudent to fly balloons in any ship or craft which will reach the lowering position before H - 15.

3. This will allow 98 balloons in on the first tide and 102 balloons in on the second tide of D day, including those flown by L.S.T.

(Sgd) L.C. CREASY

CHIEF OF STAFF TO
ALLIED NAVAL COMMANDER, EXPEDITIONARY FORCE

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Authority NND 947020

N 15305

26a

A. E. A. F., H. Q.
SECRET REGISTRY
9.2.44
29 MAR 1944
13796
SECRET

HOLBORN 3434.
TELEPHONE: Extn.....

Any communications on the subject of this letter should be addressed to:—
THE UNDER-SECRETARY OF STATE,
AIR MINISTRY,
and the following number quoted:—

AIR MINISTRY,
ARIEL HOUSE,
STRAND,
LONDON, W.C.2.

S.99396/0.4.

28 March, 1944.

Subject: Beach Balloon Units

Sir,

I am directed to refer to your letter AEAF/MS/13296 dated 10th March, 1944, and to inform you that the equipment position has been investigated and that the additional 3,000 balloons (MK VI) complete with stabilizers, gas valves and sufficient flying wire can be made available immediately and will be issued under Air Ministry arrangement with Headquarters Balloon Command.

2. It is understood that 4,890 balloons will cover Beach Unit requirements for 90 days after which the requirement fades out.

3. The ancillary equipment for the extended period can be met at the following rate:—

25%	-	1st May
25%	-	1st June
50%	-	1st July

This additional ancillary equipment can be supplied again under Air Ministry arrangements with Headquarters Balloon Command, without interference with other commitments.

4. The additional requirements have been established in postagram S.78710/0.4. dated 27th March 1944, a copy of which has been sent to you.

I am, Sir,
Your obedient Servant,

J. D. Roberts

Air Vice Marshal,
Director General of Organisation.

N 15306

The Air Officer Commanding-in-Chief,
Headquarters,
A.E.A.F.
Bentley Priory, Stanmore, Middlesex.

(Copy to Balloon Command)

DECLASSIFIED
Authority NND 947020

Bigot 25a

LOOSE MINUTE.

D/Chief of Ops.

ARAF/S. 22254/Ops. 60.

As requested by telephone by Group Captain Lucas,
attached for C-in-C's information is brief outline of the
British Balloon Plan as at 30th March, 1944.

lcl.

L.C. LAKE.
Squadron Leader, R.A.F.
Operations 60.

29th March, 1944.

N 15307

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BIGOT

256

Outline of British Balloon Plan as at
30th March, 1944.

Beaches and "MULBERRY B".

1. (i) Scale of Protection. Six Beach Balloon Units of 30 balloons each will fly balloons across the channel at 100 feet from L.C.T.'s and L.S.T.'s on D day, 98 balloons on the first tide and 102 on the second. This will permit an additional 20 balloons in excess of 180, to be transported for immediate casualty replacements. These balloons will provide full beach protection plus limited cover for the "MULBERRY" area until D plus 4 when it is intended to bring in by coaster, two further units of 30 balloons each and unload through the "MULBERRY" for protecting that area. These two units will carry packed balloons and hydrogen and inflate upon disembarking.

(ii) Maintenance. Basic maintenance and build-up will be carried out by ferrying unmanned balloons across on every available L.C.T. and L.S.T. after D day. Hydrogen for topping up is phased in from D plus 8 and from that date correspondingly fewer balloons will need to go over flying. In addition it is hoped to create a reserve by shipping a quantity of hydrogen and packed balloons on block ships.

(iii) Control. Control is vested in the A.A.D.C. and light portable winches will be carried to the scale ~~on one per balloon.~~ Balloon vehicles which will assist in implementing controls are phased in on the second tide of D plus 1.

(iv) Seaward Protection. Steps have been taken to provide seaward protection for "MULBERRY" and "GOOSEBERRIES" on phoenix and block ships within the total number of balloons already quoted.

Ports.

2. (1) Scale of Protection. 21 Army Group have forecast tasks as follows:-

<u>Port.</u>	<u>Approx. date required.</u>	<u>No. of Balloons.</u>
Port en Bessin.	D + 9.	25
Caen	D + 20.	15
Mulberry A.	D + 50.	45
Tituville	D + 70.	10
Non Fleur	D + 70.	15
Norm	D + 80.	50
Havre	D + 90.	50
		<u>210</u>

These dates must be considered as highly speculative and further commitments will almost certainly arise.

N 15308

(ii) Resources. 190 port balloons exist for immediate deployment and 165 further balloons are being deployed for temporary port protection in this country. It is envisaged that as this protection becomes redundant these balloons will be deployed on the continent. In addition the beach balloons amounting to 180 in all, or 240 including "MULBERRY B" when no

/longer required

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longer required can be withdrawn to this country, reformed as port units and sent overseas again as necessary.

(iii) Administration. Beach Units will be administered by the appropriate beach Squadron. The "MILITARY" and later port units will be self-administered, each having its own small flight and/or Squadron organisation.

Balloon Operators - Establishment.

- Beach and "MILITARY B" Units - 2 airmen per balloon.
- Port flights and squadrons - 7 airmen per 5 balloons.

leh.

L. G. LAKE.
Squadron Leader, R.A.F.
Operations 50.

29th March, 1944.

N 15309

N 15308

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Authority NND 947020

TOP SECRET.

24A

HEADQUARTERS, ALLIED EXPEDITIONARY AIR FORCE.

Kentel Grove, Hive Road,
Stammore, Middlesex.

Ref: AEA/TS.22254/Air.

29th March, 1944.

Subject: Beach Balloon Protection.

To: Headquarters, Balloon Command.

As a result of detailed examination by "MULBERRY B" Defence Committee it is requested that the undermentioned items be made available for shipping in each 36 block ships in the British Sector:-

- (a) One Light Portable Winch (total 36 winches)
- (b) 50 Hydrogen Cylinders (total 1800 cylinders)
- (c) 10 packed Balloons. (total 360 balloons)

2. 21 Army Group will be responsible for informing Balloon Command in due course where the block ships are to be loaded and the amount of individual cargo required for each ship. It will be borne in mind that packed balloons can only be carried where dry storage space is available, and that the number of hydrogen cylinders embarked should be carefully considered having regard to anticipated difficulties in getting them unloaded and put ashore after the block ships have been sunk off the beaches.

For Senior Air Staff Officer,
Allied Expeditionary Air Force.

for Leslie C. Peterson, Col.
A.C. STRICKLAND,
Brigadier General, Air Corps.
Chief of Operations.

Copies to: S.H.A.E.F.
ANCF
21 Army Group.

N 15310

DECLASSIFIED

Authority NND 947020

E10
23a

Subject: Defence of "MULBERRIES"

TOP SECRET

Copy No ...!

Allied Expeditionary Air Force.

21 A Gp/00/209/23/Ops(2)

Reference SHAEF/CMST/216 dated 1st March 1944.

1. As a result of detailed examination by MULBERRY B Defence Committee, the following requirement has been submitted in respect of each of 36 blockships in the British sector:-

- no/ (a) One powered balloon winch (total 36 winches).
- (b) 50 hydrogen cylinders (total 1800 cylinders).
- (c) 10 packed balloons (total 360 balloons).

no dup change

- 2. It is requested these be made available.
- 3. Please acknowledge receipt or substitute AF A 16 below.



copy

HQ 21 Army Group,
No 1 AFIC,
LONDON, W.1.
23 March 1944.

Boyd Major G
for General,
Commander-in-Chief.

Copy to: Supreme Headquarters,
Allied Expeditionary Force.
CM & SF
Arty Section
Allied Naval Expeditionary Force.
The Under Secretary of State,
The War Office (RA 3)
HQ 21 Army Group:
G(SD)
RA(AA)

N 15311

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Authority NND 947020

LOOSE MINUTE.

S.A.S.O. through Ops. 6. ✓ → D/SASO. 25/3

Beach and MULBERRY Balloons - Summary of position
as at 24th March, 1944.

1. Scale of Protection Provided.

8 beach units of 30 balloons have been formed and trained within Balloon Command: only 7 are at present established but action is being taken by A.E.A.F. to establish the additional unit.

2. Scale of Protection Required.

No definite request for protection has yet been received from 21 Army Group but it is understood that they will be requesting balloon protection on a scale of 60 balloons to each beach squadron area, plus an additional 60 for the MULBERRY, making 240 in all.

3. Method of Providing Protection.

An appreciation on the subject of Beach and MULBERRY protection was prepared in conjunction with Balloon Command in February and forwarded to No.21 Army Group. It will be appreciated that this document was prepared before Balloon Command had any opportunity to gain experience in transporting and deploying Mark VI balloons under the circumstances envisaged. Therefore, although the desirable number of balloons remains as stated at 240, details of their transport to the Continent will have to be modified in the light of experience which has been and is still being gained in exercises. The original appreciation was based on the assumption that the Navy would accept balloons flying on all L.S.T. and L.C.T. from the second wave of the first tide on D day and thereafter until it was found possible to bring in hydrogen and packed balloons at about D + 8. Two difficulties have arisen here, neither of which has yet been definitely settled.

(i) Radar Interference.

Great difficulty has been encountered in obtaining from A.N.C.X.F. a ruling on the question of how soon after the initial assault balloons can be flown across the Channel without prematurely giving away our intentions to the enemy. I understand that it has now been decided by the Radar authorities that balloons can only be accepted flying at 100 ft. 7 miles behind the assault. This is being confirmed on paper by A.N.C.X.F. together with details of exactly how many balloons can be flown across on D day. A rough number is understood to be 105 on the first tide and 115 on the second tide, making 220 in all.

(ii) It is understood that Commander E.N.T.F. has expressed his agreement to ferrying balloons across on all L.C.T. and L.S.T. until hydrogen and packed balloons can be transported. A.N.C.X.F. however, consider that certain L.C.T. may require balloon protection on the homeward journey and I am awaiting a definite decision from them on the number of craft they will be able to make available for the build-up of balloons, bearing this factor in mind. It is hoped that they will fall in with E.N.T.F.'s views on the subject.

4. Estimated Practical Scale of Balloon Protection.

It is apparent from para.3(i) above that it will be impossible to
/establish.....

N 15312

establish balloons on the full scale of 240 by the process of ferrying them across the Channel. This point was made on March 22nd. at a meeting of the Port Committee, presided over by Brigadier Parmenter, which includes MULBERRY protection among its responsibilities. It was tentatively agreed at the meeting that the best policy would be to fly across as many balloons as possible on D day. This will probably amount to 6 units aggregating 180 plus about 40 unmanned balloons to replace casualties. From these balloons cover would be provided as far as possible to the MULBERRY land area up to D + 4, in addition to the normal beach protection. On that date the hope was expressed that a 120 ton coaster could be made available to carry balloons and equipment up to a total of 2 units of 30 each, together with hydrogen for their inflation. These balloons would be unloaded through the MULBERRY organisation and become immediately available for full protection to the port. On receipt of written confirmation of the Naval Radar Objection and its scope, Brigadier Parmenter will take steps to lay-on such a craft.

5. CONCLUSION.

Even allowing for the restricted number of balloons which can be brought across bearing in mind the Naval Radar Objection, I consider that a very adequate degree of balloon protection can be established and maintained on the lines suggested above. The importance of the craft for MULBERRY on D + 4 needs no stressing and this matter will be pursued as soon as the Radar ruling is confirmed.

6. Balloon Representation at Second T.A.F.

An Officer by name S/Ldr. Gates has been posted to Second T.A.F. to assist with detailed balloon planning on a lower plane. He will be available for consultation both by 21 Army and by Balloon Command and it is intended that he shall accompany the Balloon Force to the Continent on D day, from which time he will act as co-ordinating officer both operationally and administratively on the other side. He has had considerable practical balloon experience in the Mediterranean and is working in close co-operation with me.

IC. LAKE

IC. LAKE,
Squadron Leader.
Ops. 6c.

ICM

24th March, 1944.
AFAT/22254/Air.

N 15313

~~TOP SECRET~~

~~700~~
21a

HEADQUARTERS, ALLIED EXPEDITIONARY AIR FORCE,
Kestrel Grove, Hive Road, STANMORE, Middx.

Relé

Stalder
23/3

REF: *6* ABAF/MS.13296/Ops. 6 *6*

23rd March, 1944.

SUBJECT: Operation "OVERLORD" -
Balloon Barrage

TO: Admin. Plans, NORFOLK HOUSE

Reference ABAF/MS.687/Admin. Plans, the fifth sentence, paragraph 9, page 2 is in error in stating that the Second Army cannot phase in the required vehicles until D + 2. All planning has been done on the basis of the required balloon vehicles arriving on the second tide during D + 1.

S. H. MORROW,
Colonel, Ops. 6.

MORROW

DECLASSIFIED
Authority NND 947020

N 15314

LOOSE MINUTE.

20A

D/S. A.S.O. through Ops.6.
Air Commodore Admin Plans. N.H.

British Beach and Mulberry Balloon Commitments.1. Radar Interference.

A message was received by telephone, 21st. March 1944, from Commander Borritt A.N.C.X.F. that the Radar ruling was that balloons flying across channel could only be accepted at 100 ft. 7 miles behind the assault. This implies that approximately 105 balloons only can be flown in on the first tide of D Day and about 115 on the second tide as opposed to the beach appreciation estimate of 265 and 115 respectively.

2. It is apparent that if these figures are confirmed 21st. Army Group's requirements for 240 balloons cannot on the present casualty estimates be built up in the beach and Mulberry area, except over a very long period, unless packed balloons and Hydrogen can be brought in at an early stage.

3. The speed of the build up will also be governed by an A.N.C.X.F. decision as to whether it can be accepted that all L.C.T. and L.S.T. can ferry across one balloon each from D+1 until Hydrogen and packed Balloons can be brought in at about D+8.

I understand that this suggestion is acceptable to Commander, E.N.T.F. but confirmation of A.N.C.X.F.'s agreement is awaited as it may be considered that some L.C.T. require Balloon protection on the homeward journey. It was agreed at a meeting presided over by A/Cdr. Trinder on 18th March that it would be possible to fly a balloon over for us in L.S.T.s in addition to the balloon normally carried on these craft for protection.

4. Ports Committee Meeting, Ashley Gardens, p.m. 21st. March, 1944.

At a meeting of the above committee presided over by Brigadier Parmenter the question of balloon policy as regards Mulberry protection was further discussed. I detailed the information as mentioned in paras.1 and 2 and it was appreciated that if full protection was to be given to the beach assault areas, protection of Mulberry must be to some extent prejudiced in the early stages. It was understood from the Committee that no form of protection was required in the Mulberry area until D+2 and it was suggested and tentatively approved that it would be necessary to provide some protection to the area up to D+4 from the 220 balloons which can be flown in for the beaches on D Day plus such replenishments as can be brought in flying during D to D+3.

5. The question of permanent protection to the Mulberry was then considered. It has been estimated that on D+4 1,000 tons of stores can be cleared through Mulberry, but it is considered by Brigadier Parmenter that in fact a considerably higher tonnage can be passed through the port. Subject, therefore, to confirmation of the A.N.C.X.F. limitation on flying balloons in on D Day it was suggested and considered feasible that the Ports Committee should request a 120 ton coaster on D+4 which could be allocated to bring over two balloon units of 30 balloons each together with complete personnel, packed balloons and the necessary hydrogen supplies for initial inflation and immediate maintenance. M.T. for these two units is already phased in by 21st. Army on the second tide of D+1 and would, therefore, be awaiting the units arriving by coaster.

N 15315

6. I consider that the restriction mentioned in para.1 while undesirable does not seriously prejudice the value of beach balloon protection except in the initial stages, as long as the coaster can be made available to carry in the two units for Mulberry protection on D+4. The immediate effect of course is that up to the landing on the second tide of D Day only 105 balloons less casualties will be available on the beaches. This will provide a somewhat sparse form of protection which nevertheless may have considerable deterrent value, and in any case there would appear to be no way of increasing the number of balloons available as there is no possibility of lift being provided for packed balloons and hydrogen at this stage of the operation. It will be appreciated that even with the suggested restricted lift on D Day we shall still be flying considerably more balloons than the U.S. Forces, who are proposing to use 135 for the entire beach operation,

/including.....

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including Mulberry.

7. As soon as A. N. C. X. F. Radar ruling is received I suggest writing to 21st. Army Group so that their acceptance of the limited number of balloons can be confirmed. Also so that they can take steps to request the use of a coaster for Mulberry protection as envisaged in para. 5.

te/le.

L. C. LAKE.
Squadron Leader.
Ops. C. C.

LLM

AEAF/S. 22141/Air.
Copy on file: AEAF/S. 13296/Air.
Date: 22nd. March, 1944.

N 15316

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~~SECRET~~
19a

HEADQUARTERS
ALLIED EXPERIMENTARY AIR FORCE
NORFOLK HOUSE, ST. JAMES'S SQUARE
LONDON S.W.1

REF : AEAFF/MS 687/Admin Plans DATE : 21st March, 1944.

SUBJECT : OPERATION "OVERLORD" - BALLOON BARRAGE.

TO :

- Air Commodore F.M. Trinder.....H.Q. A.E.A.F. (Norfolk House)
- Brigadier E.R. Benson76 A.A. Bde, 2nd Army.
- Colonel S.H. MorrowOps. 6, A.E.A.F.
- Group Captain Lord Ashburton ...Balloon Command
- Group Captain J.N. BrownBalloon Command
- Group Captain A.J. Pelham-Groon.A.L.C., E.T.F.
- Group Captain M.S. ShapcottH.Q. A.E.A.F.
- Commander G. BorrettA.N.C.X.F.
- Lt. Col. G.C. PattersonA.A. Officer, 1st U.S. Army.
- Wing Commander G.H. HarrisA.E.A.F. (Movements)
- Lieut. Commander J.J.E. Farnol...S.C.O. to N.C.E.T.F.
- Major E.J.W. BarnesR.A. (A.A.) H.Q. 21 Army Group
- Squadron Leader L.C. LakeOps. 6 c, A.E.A.F.
- Squadron Leader J.H. Gates2nd T.A.F.
- Lieutenant R.E. DaveyRadar, A.N.C.X.F.
- Flight Lieut. J.P. Montgomerie..Signals "J", A.D.G.B.

1. Herewith copies of Minutes of the Meeting held at Headquarters; A.E.A.F., Norfolk House, on Saturday, 18th March, 1944, in regard to balloon barrage for Operation "OVERLORD".

2. Any comments on these minutes should be forwarded to A.E.A.F., Norfolk House, Admin Plans, by 18.00 hours on 24th March, 1944. Comments received by this time will be incorporated in the minutes. If no comments are received, the present minutes will be treated as final.

M.S. Shapcott

M.S. SHAPCOTT
Group Captain
ADMIN 1.

N 15317

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MINUTES OF A MEETING HELD AT HEADQUARTERS, ALLIED EXPEDITIONARY
AIR FORCE, NORFOLK HOUSE, ST. JAMES'S SQUARE, LONDON, ON
SATURDAY, 18TH MARCH, 1944, AT 11.00 HOURS.

OPERATION "OVERLORD" BALLOON BARRAGE.

PRESENT:

Chairman: Air Commodore F.H. Trinder.....	H.Q. A.E.A.F. (Norfolk House)
Brigadier E.R. Benson	76 A.A. Bde, 2nd Army.
Colonel S.H. Morrow	Ops. 6, A.E.A.F.
Group Captain Lord Ashburton	Balloon Command.
Group Captain J.N. Brown	Balloon Command.
Group Captain A.J. Pelham-Groen	A.L.O., E.T.F.
Group Captain M.S. Shapcott	H.Q. A.E.A.F.
Commander G. Borrett,	A.N.C.X.F.
Lt. Col. G.C. Patterson	A.A. Officer, 1st U.S. Army.
Wing Commander G.H. Harris,.....	A.E.A.F. (Movements)
Lieut. Commander J.J.E. Farnol	S.G.O. to H.C.E.T.F.
Major E.J.W. Barnes,.....	R.A. (A.A.) H.Q. 21 Army Group
Squadron Leader L.C. Lake	Ops. 6 c, A.E.A.F.
Squadron Leader J.H. Gates	2nd T.A.F.
Lieutenant R.T. Davey	Radar, A.N.C.X.F.
Flight Lieutenant J.F. Montgomerie ..	Signals "J", A.D.G.B.

1ST ITEM OF AGENDA - HEIGHT AT WHICH BALLOONS CAN BE FLOWN BOTH IN
PORT AND AT SEA.

1. The Chairman opened the Meeting by stating that the height at which balloons can be flown at sea was of great importance as it governed the whole question of the speed at which a balloon barrage could be provided on the far shore from 'D' day onwards. N.C.E.T.F. stated that they were prepared to accept that balloons could be flown at a height of not more than 200 feet and that they had in fact been accepted at this height on sailing plans as follows:-

Force 'J' items No. 10 - 11.
Force 'G' items No. 7 - 8.
Force 'S' items No. 4.

A.N.C.X.F. stated that if balloons were flown at a height of 200 feet then they should not be closer than 25 miles from the first assault wave. The Chairman stated that this was not acceptable as if the barrage were to be effective, all balloons must be landed from the L.C.T.s of the 2nd wave of assault craft, which would be considerably closer than 25 miles from the first wave. If balloons were not flown from the 2nd wave of assault craft, there would be insufficient craft to carry the number of balloons required to be landed on 'D' day, unless considerable lift for vehicles and balloons were provided at the expense of other equipment. (See also para. 9 below).

2. Signals A.E.A.F. stated that they were not able to express an opinion on the effect of balloons on enemy Radar as they were not in possession of certain facts regarding the particular type of balloon to be used. The Chairman requested that Signals A.N.C.X.F. and A.E.A.F. should examine the matter together and ascertain definitely what was the greatest height that balloons could be flown from the 2nd wave of assault craft, without giving the enemy the opportunity of picking them

ACTION:
Sigs. ANCXF
Sigs. ABAY

/up on

N 15318

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ACTION:
H.Q. ANCXF. up on their Radar, prior to the first assault wave being discovered. H.Q. A.N.C.X.F. would advise H. A.B.A.F. of the final decision after this examination had taken place.

3. It was confirmed that, provided A.N.C.X.F. agreed to the inclusion of balloons at the item numbers of Forces 'J' 'C' and 'B' quoted in para.1 above, it would be possible to fly 240 balloons in the assault. Balloon Command asked whether it would be permissible to raise balloons to their maximum height as soon as it was evident that the enemy were aware of the existence of the first wave of assault craft. This was at first confirmed, but at the end of the meeting A.N.C.X.F. Radar representative stated that it was desired to hide the size, course and depth of the convoy from the enemy, as long as possible and that the raising of balloons to their maximum height might disclose valuable information. Control of the balloons would, therefore, have to be left to the Naval Force Commanders, in order that their efforts to confuse the enemy should not be interfered with.

4. It was confirmed that any restriction laid down by A.N.C.X.F. regarding the height at which balloons could be flown, would apply to American Forces, as the latter proposed to convey their balloons in a similar manner to the British Forces.

5. Balloon Command raised the question of the height at which balloons could be loaded on to L.C.T. and stated that they could be put aboard craft at a height of 200 feet in a wind up to 25 miles per hour, but that in one of greater velocity, the balloons would have to be flown at a higher altitude. A.N.C.X.F. read out the names of all the places where the loading of balloons on to craft would be carried out, and as Balloon Command confirmed that at all these places static balloon barrages were already in existence in the vicinity, it was agreed that there would be no restriction as to the height at which balloons could be put aboard craft. This was applicable to all loading Harbours, both British and U.S.

2ND ITEM OF AGENDA - METHOD OF HANDLING BALLOONS ON CRAFT AND ANY FACILITIES REQUIRED FOR THIS

ACTION:
Ops 6 ABAF 6. A.N.C.X.F. stated that all L.C.T.s used by the British would be fitted with naval balloon winches but he was not certain whether this would apply to L.C.T.s Mark V to be used by the U.S., and this matter would have to be investigated by the U.S. staff.

ACTION:
Balloon Command and A.N.C.X.F. 7. Balloon Command raised the question of the use of Naval winches for R.A.F. Balloons as this would involve modification to the winches. The Chairman stated that this matter was to be investigated by Balloon Command and A.N.C.X.F.

8. Considerable discussion then took place as to the method of landing balloons on the Far Shore. It was suggested that the balloons should be carried ashore by two men without L.P. winches. This method would not allow of any control being exercised until vehicles with winches and drivers were available, and this would not be until D + 2. No control of the balloons would therefore be possible on the nights of 'D' and 'D' + 1.

9. 2nd Army stated that they wished control to be exercised from the night of 'D' onwards and asked whether experiments could be carried out to ascertain whether the L.P. winches could be fitted with flotation gear and towed ashore. 2nd Army were emphatic that vehicles could not be phased in before D + 2, as every available inch of room had already been allotted.

D+1 2nd Title
/10 2nd T.A.F.

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N 15319

10. 2nd T.A.F. stated that the L.P. winches weighed 240 lbs and to get these ashore by any method would require, in addition to the two men allotted to each balloon, a further two men to each winch. The Chairman suggested that some of the additional men required for landing the winches could probably be provided from R.A.F. Beach Flights as they would be unemployed on 'D' day. It was decided that No. 21 Army Group, 2nd T.A.F. and Balloon Command were to inaugurate trials to find out whether winches could be fitted with flotation gear and to go into the whole problem as to the best method of getting them ashore. Any methods that were evolved should be tried out in forthcoming exercises. It was agreed that immediate trials should take place at Southampton in conjunction with Naval Force 'J'.

ACTION:
21 Army
Group, TAF
and Balloon
Command in
conjunction
with Force
'J'.

11. The U.S. representatives confirmed that they were not confronted with a similar problem as vehicles were being provided to allow of control being exercised on the night of 'D' day.

12. A.N.C.X.F. stated that provided no postponement occurred, a maximum time of 48 hours would elapse between the putting of balloons aboard and sailing of craft; to this could be added a period of 12 hours for the trip across. Balloon Command stated that they could accept this period of 60 hours without 'topping-up'. They stated it would, however, be necessary for the Admiralty to provide a vessel for 'topping-up' purposes so that this could be done should postponement of sailing take place after the balloons had been loaded. A.N.C.X.F. said they would take this up with the Admiralty.

ACTION:
A.N.C.X.F.

13. 2nd Army stated that no cylinders for 'topping-up' purposes were being landed before D + 8, but they would investigate with the Naval Authorities the taking of cylinders across on Naval Block ships. Balloon Command stated that the rate of build up of balloons on the Far Shore would be governed by the speed at which 'topping-up' cylinders could be made available.

ACTION:
2nd Army
with
A.N.C.X.F.

3RD ITEM OF AGENDA - QUANTITY OF BALLOONS THAT CAN BE TRANSPORTED
INFLATED ON FIRST AND SECOND TIDES OF 'D' DAY, AND QUANTITY ON
SUBSEQUENT DAYS FOR MAINTENANCE.

14. A.N.C.X.F. questioned whether R.A.F. balloons would be carried on L.S.T.s as each L.S.T. was required to fly a naval balloon for protection on both outward and homeward voyages. After discussion it was agreed that, provided the height and position of the balloons were regulated, each L.S.T. could fly two balloons. A.N.C.X.F. were, however, definite that hydrogen cylinders could not be taken on L.S.T.s

15. A.N.C.X.F. stated that if the carrying of balloons on L.C.T.s on the first tide is accepted after the investigation to be carried out vide para. 2 above, the Navy would like a proportion of the balloons to be Naval and return with the craft. Balloon Command stated that the total number of R.A.F. balloons which would be available would be 240 and the Chairman proposed that if more than this could be lifted, the balance should be naval balloons. A.N.C.X.F. stated that this proposal was not acceptable to them as if balloons could be carried they would like some to be naval even if the quantity were 240 or less. It was decided, therefore, that A.E.A.F. and A.N.C.X.F. should calculate the numbers of balloons to go in on each tide on 'D' day, and then to agree as to which service they should belong.

ACTION:
Ops 6 c
AEAF and
ANGXF

4TH ITEM OF AGENDA - FACILITIES REQUIRED BY BALLOON COMMAND
EMBARKATION POINTS.

N 15320

16. It was agreed that Balloon Command would require two separate organisations, the first to get balloons to, and maintain them at, embarkation points. Responsibility for this organisation would rest with Balloon Command. The second organisation would be to pass balloon operating personnel through embarkation channels, to carry out the loading of the balloons on to the craft, and subsequently sail with them. This second requirement would call for careful detailed planning between Balloon Command and 2nd T.A.F., in conjunction with the 2nd Army.

ACTION:
Balloon
Command
ACTION:
2nd TAF
Balloon
Command
and 2nd
Army.

OTHER POINTS DISCUSSED.

ACTION:
2nd TAF and
2nd Army.

17. 2nd Army raised the question of the administration of Beach Balloon personnel by R.A.F. Beach Squadrons. He stated that it might be preferable for Beach Balloon personnel to be fed and accommodated under arrangements to be made by the A.A. Defence Commander as they would probably be located near a searchlight or A.A. gun position. It was considered that the administration of balloon personnel must remain with the R.A.F. Beach Squadrons but that feeding and accommodation arrangements could be mutually agreed between 2nd T.A.F. and 2nd Army.

ACTION:
2nd TAF

18. A.R.A.F. raised the question of the administration of personnel of the Beach Balloon Units for MELBERRY, stating that there would be no R.A.F. Beach Squadron or Flight to whom they could be attached for administration. It was decided that this matter should be investigated by 2nd T.A.F., and a decision made as to whether or not a port balloon organisation would be preferable.

ACTION:
A.R.A.F.

19. Ops 6 c, A.R.A.F. stated that there were in existence 7 Beach Balloon Units and an 8th was being formed. The formation of this 8th Unit, however, had not yet been authorised by the Air Ministry. It was decided that A.R.A.F. would request Air Ministry, O.4 for one additional unit to be formed.

ACTION:
21 Army
Group and
Ops 6 C
A.R.A.F.

20. Balloon Com and raised the question of Port Balloon Squadrons. 2nd Army stated that they knew of a requirement for one Squadron only which was firm, but that they were making an appreciation of the whole situation regarding the use of balloons for protection of captured ports. It was decided that A.R.A.F. would investigate with 21 Army Group what the requirements of Port Balloon Squadrons would be, and inform both Air Ministry and Balloon Command. It was emphasised by Balloon Command that the number of Squadrons required, their strengths and the dates at which it would be necessary for them to be available, must be decided as quickly as possible.

21. Balloon Command stated that they would want to know the following:-

- (a) The Harbours from which Beach Balloon Units would embark.
- (b) The number of craft loading at each Harbour.
- (c) The anchorages to which craft would go from the Harbours.

ACTION:
A.N.C.X.F.

A.N.C.X.F. stated that they could make this information available.

22. A.N.C.X.F. asked whether the figure of 240 balloons mentioned, included any requirements for the U.S. The answer was No. The U.S. have 155 balloons of their own and the U.S. representatives confirmed that they did not want any more.

ACTION:
1st U.S.
Army.

23. Balloon Command stated that they had a similar responsibility towards U.S. Balloon Units in regard to the supply of hydrogen at U.S. embarkation Harbours, and would require the same information as regards U.S. Units, as asked for in para.17 above. The representative stated that he would provide this. 1st U.S. Army

24. 21 Army Group

N 15321

ACTION:
Sigs. A.E.A.F.

24. 21 Army Group asked whether the E.A.F. had any objections from C.C.F. or V.H.F. aspect in regard to the siting of the balloon barrage on the far shore. It was decided that this would have to be investigated by Signals A.E.A.F.

ACTION:
2nd T.A.F. and
2nd Army.

25. 21 Army Group also raised the question of siting balloons in the vicinity of the emergency landing strip. It was decided that this matter would have to be investigated by 2nd T.A.F. and 2nd Army when preparing the siting plan.

26. Will all addresses please note that any matters concerning A.E.A.F. arising out of the above minutes should be addressed to Headquarters, A.E.A.F. Ops. 6, Nostrol Grove.

J.P. [Signature]
A/c

Ref: A.E.A.F./MS 687/Admin Plans
21st March, 1944.

Distribution: To all present, and
Air Ministry, D.F.O.
Air Ministry, O.4.
S.H.A.E.F. C.3 (2 copies)
S.H.A.E.F. C.4 (2 copies)
A.E.C.X.F. Chief of Staff (2 copies)
21 Army Group, E.C.S. (Plans)
H.Q., A.E.A.F.: S.A.S.O.
Air Commodore Stratford
A.C.A.
D/S.A.S.O.
Group Captain Movements.
Group Captain Organisation.
H.Q. 2nd T.A.F.: S.A.S.O.
A.C.S.
Admin. Plans (St. Pauls).
Group Captain Organisation.

N 15322

Subject :- Balloons

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#7A
180

S. 22141

OG/1/1/3

11 Mar 44

✓ Sqn Leader Lake, RAF,
AAAF

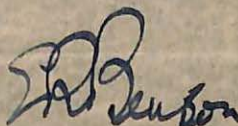
1. I understand from BRA Second Army, who attended Exercise 'PRANK' yesterday, that he spoke to several balloon personnel who had brought ashore balloons from landing craft.

These men had walked their balloons ashore successfully and were flying them at operational height, but they had not brought ashore their portable winches, stated that it was impossible for them to do so and estimated the weight as 250 lbs.

2. I had previously understood from you that the portable winch was collapsible, and could be easily carried ashore through the water by two men, either the balloon crew after first fixing their balloon ashore with sand bags, or by another two men provided from other sources. Will you please confirm that this is so, and state the weight of the winch.

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Brig.,
Comd 76 AA Bde.

Copy to :- 80 AA Bde

Action: Met Brig Benson at S.P. 13/3. The difficulties about embarking & disembarking L.P.W.s are under discussion in the light of Balloon Command experience during Exercise Prank.

leh.

N 15323

~~12a~~
17a

LOOSE MINUTE.

S. A. S. O. *Op I*
through D/S. A. S. O.

I doubt whether the figures from the Mediterranean at Enc. 11A can be taken as other than an extremely general guide to anticipated balloon casualties in Operation "OVERLORD". The Squadrons mentioned were each established at 45 balloons but I understand from Balloon Officers returned from the Middle East, that the actual number of balloons flown in Squadrons at any one time varied very considerably below that figure.

2. As regards Port Squadrons, Enc. 11A suggests a very rough incidence of casualties of 100% per month allowing for the considerations mentioned in para. 1. above. This corresponds to the following estimated figures for Ports during Operation "OVERLORD":-

X + 1 to X + 3	50%	per day.	150%
X + 4 to 10+ 9	20%	" "	170%
X + 9 to X +17	12 1/2%	" "	142%
X +17 to X +31	7%	" "	105
X + 31 onwards	5%	" "	447% loss in 1st week

150% of un-affected

These figures are considerably higher than those in the Mediterranean but it is assumed in every case that the "OVERLORD" Ports will be protected immediately after capture and it was considered, therefore, wise to allow for a high casualty rate.

3. As far as I can gather the beach Units in Sicily and Italy operated in Units of 12 balloons. Casualties in beach operations are therefore approximately 600% in Sicily and 200% in Italy but the figures in 11A do not give any adequate indication of the exact period during which balloons were deployed on beaches.

why 4. Reference Minute 5. para. 3 I consider our estimate of beach balloon casualties is probably conservative, viz: 30% daily up to D + 7 and 15% daily thereafter, plus 20% for losses in transit until balloons can be transported, packed and inflated on the Continent. As regards casualties by A.A. these will probably not be as considerable as your minute envisages. Recent experience with the larger L.Z. type balloon during the London attacks has shown that nightly casualties when the barrage was intense have amounted to only about 10%. During these attacks the balloons were flown at a controlled height of 1500 ft. which compares with the operational height of 2,000 ft. of a Mark VI. Casualties during "OVERLORD" Operations may also be reduced by the fact that A.A. will probably require the barrages grounded at night.

L.C.L.

N 15324

L. C. LAKE.
Squadron Leader.
Ops. l. c.

8th March, 1944.

AEAF/MS. 22141/Air.

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LOOSE MINUTE.

Air Commodore Admin Plans.

Attached for your information, reference KBC/S.53202/7/Ops. dated 13th March, 1944, is Balloon Command Appreciation of experience gained during Exercise "FRANK".

2. Since I received this document I have had conversations with Brigadier Benson, No. 76 A.A. Brigade, from which the following factors have emerged:-

- (i) There is still no definite decision from ANCKM considering the radar objection to flying balloons across channel. Brigadier Benson is pressing for this decision which, if unfavourable, will make necessary further consideration of the method and timing of transporting balloons across.
- (ii) No consideration can be given to the lifting of balloon vehicles until D + 1. It appears therefore, that it must be accepted that balloons will fly uncontrolled on the nights of D and D + 1 in view of the difficulty with portable winches. This policy is acceptable, if necessary, to A.A. as long as there is no R.A.F. objection. Brigadier Benson is anxious that one L.P.W. per balloon be taken over, so that the maximum control may be obtained in view of possible sinkings of craft carrying balloon vehicles on D + 1. This question will be discussed at a meeting to be arranged, at which representatives of Second Army, Second T.A.F. and Balloon Command will be present.
- (iii) The question of embarking balloons within 24 hours of the sailing of the convoy is important. KBC/S.53202/7/Ops dated 13th March, para. 13 (e) and (f) refers. I suggest that this matter should also be referred to the meeting mentioned above, so that the possibilities of providing craft for this purpose can be examined.
- (iv) The lifting over of a balloon reconnaissance party prior to the tide carrying the balloons themselves is impossible, and in Brigadier Benson's

N 15325

/opinion useless

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opinion useless, owing to conditions on the beaches during the initial assault. In any case the Army is insistent that the full 240 balloons should be transported on the first tide, so it would appear that any requirements for reconnaissance which cannot be made without depleting this number, must be dealt with by a suitable increase in establishment for the Beach Units.

hch

L.C. LAKE.
Squadron Leader, R.A.F.
Operations 6C.

15th March, 1944.

ARAF/S.13296/Ops.6C. ✓

Copy on F. S.22121.

N/15325/1

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N 12322

~~850~~
14a

United States Secret

Appreciation of Experience Gained by No. 51 B
Balloon Unit on Exercise "Prank".

1. The Exercise was for a first assault on a beach, balloons participating only for the sake of the experience to be gained from a wet shod landing, and the embarkation and carrying of balloons on L.C.Ts.
2. In view of the ruling of A.N.C.X.F., issued under reference No. X/0885/3/2 dated 19th February 1944 in regard to the undesirability of flying balloons over owing to Radar implications, the requirement was for balloons to be embarked at the Hards, 50% at point of attachment, i.e. at zero feet, and 50% at 100 feet.

3. Inflation and Embarkation.

Embarkation of military units commenced on 7th March 1944 and two balloons were inflated and successfully put on board two L.C.Ts tied off at point of attachment to the rail.

On 8th March 1944 18 further balloons were due to be embarked. Owing to adverse wind conditions it proved impossible to get a single balloon on board at the Hards, either at point of attachment or at 100 feet.

4. In order to retain balloons on the Exercise it was arranged that the K.B. Section, Portsmouth, should supply craft at first light on the 9th March 1944 to ferry the balloons, weather permitting, to the landing craft at their anchorages.

5. On 9th March 1944, the weather being favourable, it proved possible to embark 24 balloons in this manner flying from 100 foot strops. The two balloons embarked at point of attachment tied to the rail on 7th March had by this time become casualties.

6. Owing to previous experiments having shown the difficulty of dis-embarking the L.P. winch with two men, each L.C.T. with a balloon carried two men and an L.P.W. drum only. L.P. winches on the scale of two per five balloons were packed in the two Bedford 4 x 4 vehicles which were also embarked from the hards on 8th March 1944.

7. A recc. party consisting of 1 F/O. and 5 N.C.Os from the Unit were embarked on an L.C.I. with the Light A.A. recc. party.

8. Beaching and Dis-embarkation.

The convoy sailed at 2000 hours on the 9th March and the recc. party, on beaching, chose suitable balloon sites and were ready to act as guides to the crews when they landed with their balloons.

As the L.C.Ts reached the beach the 24 balloons were successfully got ashore, the first at 0830 hours. After being guided to their sites the balloons were raised to operational height from the L.P.W. drum with a crowbar inserted as a spindle. The majority of the crews got ashore dryshod on the top of army vehicles, and this should prove feasible in all future Exercises or Operations. The first balloon was at operational height within 15 minutes of landing, and, as succeeding waves beached, balloon coverage was built up to the full protective strength by 1400 hours.

9. Owing to unforeseen difficulties many of the craft were delayed in beaching, among them the two carrying balloon servicing vehicles together with the Balloon Unit Commander.

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10. Thus, at last light, the barrage of 24 balloons having been built up by 1400 hours was still flying at operational height, but it was impossible to get any balloons down as the servicing vehicles and winches were still afloat off shore.

11. These latter got ashore at 2100 hours that night and four balloons were promptly closehauled by L.P. winch /flexible drive method. The remainder, on orders from the Beach Commander, remained flying.

12. The following day the Exercise, as far as balloons were concerned, was completed and they were hauled down deflated, packed and returned to their Stations by road.

Conclusions Drawn from the Exercise.

13. Embarkation.

(a) Balloons cannot be carried successfully on L.C.Ts at point of attachment secured to the rail.

(b) In any but the most favourable weather conditions balloons cannot be embarked successfully at 100 feet. The safe height at which this operation can be carried out with certainty is under investigation but is thought to be at least 300 feet.

(c) At wind speeds of over 30 m.p.h. at ground level it would be doubtful whether the balloons can be embarked at any height, and alternative means of "ferrying" balloons to the landing craft at their rendezvous anchorages, when weather conditions permit, should be provided as an insurance.

(d) Assuming balloons were embarked from the hards at 300 feet or over, they could be attached to the Admiralty winch on board each L.C.T. and could be hauled down to 100 feet for the voyage to get over the implications of Radar. This procedure would not prejudice to any extent the speed of their disembarkation on beaching.

(e) A major difficulty to be faced is the fact that, if the craft remain at their rendezvous moorings for more than 48 hours before sailing, balloons embarked at the hards early on will not be at their maximum efficiency on landing, also they may suffer casualties due to severe weather, or even become unserviceable for want of topping up before the convoy sails. One cylinder of hydrogen could easily be carried on each craft for topping up, but the process of topping up would be difficult, involving the carrying of additional equipment, and would only be feasible in conditions of dead calm.

(f) The only positive solution is to ensure that balloons are embarked during the 24 hours preceding the sailing of the convoy, and this is a further argument for investigating most carefully the possibility of embarkation by the "ferrying" method, and transfer to L.C.Ts at their rendezvous stations.

(g) Whatever embarkation procedure is eventually adopted the organising of the rigging, inflation and embarkation of balloons entails much detailed planning in close liaison with the many different services and authorities on the spot. This organising and planning takes place during the period when the balloon unit with its Officers and vehicles is in the concentration or marshalling areas and is in no way available to participate. Balloon Command must therefore ensure that an adequate number of competent Officers, preferably of the rank of Squadron Leader, are available temporarily during the period D - 8 to D, to assume responsibility for producing the balloons in perfect condition to the B Unit crews on the correct craft and at the right moment. These Officers could only perform this duty successfully by the closest liaison with all the local Naval and Military Authorities.

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14. Voyage.

Once clear of the shore and the wind eddies produced by dock installations, no undue difficulty need be anticipated with the balloons. In light wind conditions they can undoubtedly be taken over at 100 feet but should moderate to strong winds be encountered a clearance to fly over at 300 feet would be most desirable to increase the factor of safety.

15. Landing.

The landing of the balloons is mainly a question of co-operation between R.A.F. crews and other personnel on board the craft. In effect it appears to sort itself out, and in the case of Prank the crews and their balloons got a lift to the shore on any available vehicle leaving the craft.

In some cases the vehicles got drowned but the crew were still able to wade ashore with their balloon.

16. Deployment and Operation.

(a) Provided a recc. party of the necessary size has done its work, balloons can be deployed to their chosen sites without undue difficulty and it may be reckoned that each balloon should be flying at full operational height within 15 to 30 minutes of beaching depending on the distance of its site from the landing point.

(b) The fact must be faced that two airmen cannot be relied on to get an L.P. winch ashore unaided, and that the presence of this winch might well prejudice their ability to get a quick lift to the beach on a vehicle. The landing of the balloon with the winch drum only, and the technique of putting it to operational height using a crowbar as a spindle is perfectly feasible in such weather as will be necessary to render the whole operation possible, and is undoubtedly the answer to this trouble.

(c) The L.P. winches themselves on a scale of two per five balloons packed on the balloon servicing vehicles will enable the full degree of control over the balloons as at present envisaged to be exercised, but only from the time these vehicles are ashore.

(d) It is essential therefore that these vehicles should cross on the same wave of craft as the initial balloons and the necessary space must consequently be provided.

(e) The Exercise clearly showed the risk of vehicles not getting ashore on time owing to troubles with the landing craft, and it would be most desirable to minimise this risk by phasing forward the transportation of the third vehicle of each unit to the same wave, this vehicle also carrying a proportion of the L.P. winches.

17. General Conclusions.

To avoid congesting the beach, and in order to provide full scale balloon protection at the earliest moment, a recc. party of at least 1 Officer and 5 N.C.Os from each Unit is essential. The provision of this party will automatically reduce the number of bodies available for transporting and landing the balloons. Assuming the commitment is for 240 balloons, the number landed initially would be reduced to 200. This reduction however, should prove acceptable in view of the fact that the protection for Mulberry will not be needed before D + 1 at the earliest.

18. The maintenance of an efficient barrage would be greatly facilitated and a considerable economy effected in balloons if sufficient hydrogen for topping up could be got across with the initial balloons. Provided the

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three vehicles per 30 balloons can be phased into the initial wave some 15 cylinders might be carried. It is no exaggeration to say that this might well make the difference between success and comparative failure, should bad weather interfere with the regular supply of inflated balloons flown over from this country.

19. In order to minimise the reduction in the number of balloons landed owing to the necessity for the recc. party, it is considered that drivers or additional balloon operators should be established for each of the three vehicles.

20. The major problem for this Command is the provision and embarkation of inflated balloons at the right time and place and in the correct quantities, in the face of possible weather hazards. We therefore require to know at the earliest possible moment -

- (a) The hards from which the B Unit balloons will be embarked.
- (b) The numbers to be embarked at each of these hards.
- (c) The rendezvous anchorages of the craft after leaving the hards.

Once this information is known this Headquarters must lay on temporarily an adequate number of Officers fully competent to deal with the many problems which are bound to arise, at each point of embarkation.

21. In addition we cannot rule out the possibility of having to embark balloons by means of a ferry service in order to get them on the L.C.T. safely and in prime condition for the Operation, and the provision of the craft and location of the necessary bodies must be thoroughly investigated.

22. The number of craft required will depend largely on the answers to (a), (b) and (c) above. A fast craft (20 knots) could ferry up to 20 balloons per day if the distance to be covered between the inflation point and the L.C.T. moorings does not exceed 5 miles.

13th March, 1944.

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HEADQUARTERS ALLIED EXPEDITIONARY
AIR FORCE.

Kestrel Grove, Hive Road,
Stammore, Middlesex.

Ref: ABAF/MS. 13296

Date: 10th March 1944.

Subject: Beach Balloon Units.

Sir,

I have the honour to refer to the Balloon Units which have been formed within Balloon Command for the protection of beaches during Operation "OVERLORD".

2. When this commitment was first envisaged it was considered that these Units would be required to operate for a period of 40 days. It is understood that provision and allocation of balloon equipment has been arranged on this basis.

3. It has now become apparent that:

- (i) the commitment must be considered for planning purposes as one of up to 90 days.
- (ii) transport of hydrogen to beaches will not be possible during the first 7 or 8 days of the deployment and a consequently greater loss ratio of balloons is implied.

4. The factors stated in para. 3 above involve a probable increase of approximately 3,000 balloons with ancillary equipment on the provisioning requirement previously intimated to Air Ministry.

5. It is estimated that the supplies already provisioned will now be sufficient only for the first 24 days of deployment and it is requested, therefore, that allocation be altered so as to provide for an additional 3,000 balloons together with appropriate ancillary equipment to become available from D + 24.

I have the honour to be,
Sir,
Your obedient Servant.



A. C. STRICKLAND.
Brigadier General.

for The Air Commander-in-Chief,
Allied Expeditionary Air Force.

To:
The Under Secretary of State,
Air Ministry, (O.4)
Whitehall, S.W.1.

Copies to OPS 7. (2)

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Air Corrofore, Air Plans.

NOTES ON THE GENERAL SITUATION RELATING TO BALLOON BARRAGE
FOR OPERATION "OVERLORD".

Operational Aspects.

1. It was decided in the original Air Staff paper dealing with A.A. smoke and balloons for the Beachhead area that a balloon barrage was a definite requirement.
2. No final Air Staff decision has yet been taken on the density of the barrage although Balloon Command and others concerned, including myself, have been planning on a density of 30 balloons per 2,000 yards. A meeting was recently held at Balloon Command which included representation from Air Staff at which this question of density was left to 21 Army Group for decision during more detailed planning.
3. As regards general operational control, I have advocated that in a memorandum reference ARAF/MS 687 dated 22nd February 1944, to Headquarters T.A.F. (copy to A.O.A. Headquarters A.E.A.F. and Headquarters Balloon Command) a Balloon Staff Officer should be established at Headquarters T.A.F. to handle the operational and administrative aspects connected with the beach and port balloon units. As far as I am aware, no action has been taken to establish this post.

Organisation of balloon units.

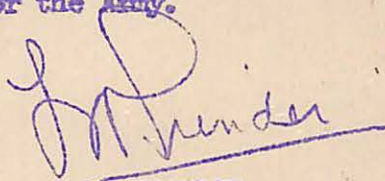
4. We are going ahead on the basis that each of our beach squadrons (which work with the army beach sub areas) shall have 2 beach balloon flights which will come under the beach squadron commander administratively.
5. In addition to the beach balloon flights, there will be the port balloon squadrons for each port requiring this defence. These will be self-contained units varying in size according to the number of balloons required at each port, and they will be attached administratively to the appropriate army port authorities who will perform the agreed services for them as between the Army and the R.A.F.
6. These balloon units will be under Headquarters T.A.F. to commence with, but Command will transfer to 85 Base Group when that Headquarters takes over control in the base area. The balloon staff officer(s) at Headquarters T.A.F. would be transferred to Headquarters 85 Base Group at the same time.

Operation of the barrage in "OVERLORD".

7. In view of the vital necessity to reduce the lift of vehicles and stores in the assault, we are planning to transfer the barrage inflated from U.K. on L.C.F's at the same time as the beach squadrons are put across. A few vehicles with winches and hydrogen cylinders for topping up will be put across around D + 7.
8. We are encountering difficulties in regard to the above scheme since the Navy will not accept the balloons being flown at any reasonable height in view of the danger of their being picked up by enemy Radar. In exercise "FRANK" we are, therefore, testing out 30 balloons of which we hope to fly 50% at 100 feet

and 50% bedded down on the craft.

9. As soon as the results of exercise "FRANK" are received, I propose to hold a conference of those concerned to try and arrive at a final agreement as to the practicability of the scheme. If the scheme is turned down then the whole matter may have to go to higher level for decision as to whether the protection given by balloons will warrant the taking up of quite a considerable lift in the assault to the detriment of lift for the Army.



F. N. TRINDER,
Air Commodore,
Admin. Plans.

H. Q. A. E. A. F.
Norfolk House
St. James's Square,
LONDON, S. W. 1.

Copy to :

Copy No.

H. Q. T. A. F. (Main)	2
H. Q. T. A. F. (Rear)	3
D. A. C. A. H. Q. A. E. A. F., Kestrel Grove.	4
S/Idr. Lake, H. Q. A. E. A. F., Kestrel Grove.	5
Group Captain Fraser, Admin. Plans, T. A. F. St. Pauls.	6
Ops. 1. (G/C. Harvey) (Reference para. 2).	7

For information :

M. G. A. 21 Army Group.	8
Brigadier R. F. K. Belchem, G. (Plans), 21 Army Group.	9

AEAF/MS. 687/Admin Plans.

10 March 1944

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UNITED STATES: SECRET.

NOTES ON A COMMITTEE MEETING HELD AT BENTLEY PRIORY, STAMMOR, in the office of Group Captain A.V. Harvey, Ops.1, A.E.A.F., on Friday, 26th January, 1944, to discuss various questions in respect of Balloon Defences for Operation "OVERLORD".

Present:

Group Captain A.V. Harvey, C.B.E.
Wing Commander R.C. Longsdon (5)
Lieut.Colonel E.F. Kingsley, R.A.
Major A. Berry, R.A. (2)
Major W.R.A. Featherstonhaugh
Major J.C.S. Hebson.
Group Captain Lord Ashburton.
Group Captain J.M. Browne
Wing Commander J.G. Hudson. (2)
* Wing Commander W.F. Blackadder

Ops.1, A.E.A.F. (in the chair)
Org., A.E.A.F.
Ops.6B, A.E.A.F.
21 Army Group.
Q(M), 21 Army Group.
Q(Plans), 21 Army Group.
Ops., Balloon Command.
Org., Balloon Command.
Ops.5A., A.D.G.B.
Ops.1A., A.E.A.F. ← not present

The Chairman opened the meeting by stating that the question of the operational aspect of Balloon Defences in connection with Operation "OVERLORD" had, up till now, been discussed informally by the various Officers interested. The Committee had, therefore, been formed in order to clarify the position and enable recommendations to be made to the proper quarters, and also to form a basis for future requirements.

21 Army Group Requirements.

2. It was resolved that the question of whether the Beach and Port Units formed under authority of S.D.155 conformed to tactical requirements must be decided by 21 Army Group. The representatives of 21 Army Group agreed that the matter would be investigated by them in consultation with Balloon Command, and a report would be given at the next Committee meeting.

Establishment of Balloon Units.

3. Wing Commander Longsdon advised that the Beach Balloon Units should be established on Second T.A.F. directly they are formed, and that the Port Balloon Units should remain on Balloon Command's establishment and transferred to Second T.A.F. immediately on deployment.

Balloon Liaison Officers.

4. It was agreed that application should be made for one Squadron Leader from Balloon Command to be appointed immediately for liaison duties to Headquarters, A.E.A.F., to work with Wing Commander Hudson, A.D.G.B. (whose services are at the disposal of A.E.A.F.), the former Officer to be available for service with 21 Army Group when required. It was also recommended that a Wing Commander and Squadron Leader should be appointed for liaison duties with Second T.A.F. in the field. The Chairman agreed to write a minute to that effect to the S.A.S.O. A.E.A.F. Portsmouth. It was stressed by all present that the appointment of all these Officers was an operational requirement.

Duration of Deployment.

5. The estimated duration of deployment for Beach and Port Balloon Units was, as far as could be ascertained, considered to be plus 90 days for Beach Units, and indefinitely for Port Units. This will be confirmed by 21 Army Group.

Balloon Flying Balloon Beaches.

6. The policy of balloon flying for Beach Units was discussed at length. The following aspects were pointed out:-

(a) only way
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- (i) The only way to guarantee a barrage being maintained was for ample balloons, equipment and hydrogen to be landed with the initial assault, and also for replenishment.
- (ii) If the space required by hydrogen cylinders, M.T. etc. could not be spared, the only alternative is for L.C.T.'s to bring over inflated balloons, with which the barrage would be flown and maintained.
- (iii) The quickest way to render the barrage operational under these conditions is to bring over the balloons flying at 2,000 feet attached to sandbags, so that on arrival they would be walked off the craft direct to their points of deployment. Later a 3-ton servicing vehicle and hand winches could be landed, thus making it possible to raise and lower the balloons, provided adequate notice is received.
- (iv) If 2,000 feet is not acceptable for the initial assault, the balloons could be flown over at, say, 500 ft. on a short leg, but then one hand winch per balloon will be required for the initial assault in order to get the balloon to operational height.
- (v) Replenishment balloons could be taken off L.C.T.'s and netted on the ground if they were not actually required to fly on arrival.
- (vi) It would probably be essential to fly from Harbours and Mark VI Balloon Shore Service Stations in this country a very large number of balloons on L.C.T.'s., in order to give the greatest degree of probability that beach barrages could be maintained by the L.C.T. arrivals on each tide, in spite of enemy activity and weather conditions.

Beach Areas to be defended by Balloons.

7. The questions of the length of beaches to be defended, store replenishment and transportation in respect of Beach Units were referred to 21 Army Group, whose representatives will report at the next Meeting.

Movement of Beach Balloon Units.

8. It was agreed that after their initial deployment Beach Balloon Units should, as a general rule, remain static. It was considered that if other areas required Balloon Defences, it would be better to get another Balloon Unit from England than to attempt to move a Beach Unit to fill a role for which it was neither established nor equipped. To re-site the balloons themselves in the immediate vicinity is a different proposition, and would present no difficulties.

Deployment of Port Balloon Units.

9. It was decided that arrangements regarding the embarkation, disembarkation and deployment of Overseas Port Units, was a matter for 21 Army Group to consider. 21 Army Group would investigate the details of the transportation difficulties in relation to the operational value of the balloon protection afforded, and would fix their "D+" day accordingly. Balloon Command would co-operate with 21 Army Group in giving any details required. A report would be made to the Committee in due course.

/Training of Port Balloon

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Training of Port Balloon Unit Personnel.

10. The bulk of the training of the personnel for the Port Units is well under weigh, and has been for some time. It was agreed that drivers only should undergo "wet-shod" training.

Re-deployment of Home Port Balloon Units.

11. It was resolved that A.E.A.F. should examine the question of re-deploying overseas the Home Port Units when no longer required in England, and that they should decide on an order of priority in this respect.

Hydrogen Supplies.

12. It was decided that the supply of hydrogen to Units overseas was briefly a question of the value of the operation in relation to the load carried. The Beach Units had already been discussed, but similar treatment could not be used for Port Units. The whole question of the hydrogen supply for these Units must be closely investigated by 21 Army Group in conjunction with Balloon Command.

Balloon Defences - South Wales Ports.

13. The question of the retention of the South Wales L.Z. barrages was discussed, relative to the letter to Headquarters, A.E.A.F. from Headquarters, A.D.G.B., reference ADGB/MS.36051/Air dated 22nd January, 1944. It was explained that these barrages were included in the Balloon Command reorganisation plan now approved by Air Ministry, but that it had been decided to retain the balloons in this area temporarily, in view of representations made by the American authorities. This could conveniently be done because the balloon personnel earmarked for Operation "CROSSBOW" have been put, amongst other places, in the South Wales barrages to await decision in respect of deploying for this Operation. If, however, Operation "CROSSBOW" is abandoned, the personnel earmarked for it, and temporarily accommodated at the South Wales barrages would, under the present orders from Air Ministry, be dissipated into other branches of the R.A.F. Headquarters, E.T.O.U.S.A. should be asked to state whether such a course would be operationally acceptable to them. Meanwhile, as the personnel in these barrages may just as well fly balloons as do nothing whilst they are standing by for Operation "CROSSBOW", it had been decided by Headquarters, A.D.G.B. that the balloon defences shall continue at the South Wales ports for the time being, in order to meet the wishes of the Americans.

Balloon Defences for American Overseas Units.

14. It was agreed that Headquarters, E.T.O.U.S.A. should be requested to let Headquarters, A.E.A.F. know at once their requirements for Balloon Defences in respect of Operation "OVERLORD", (if any), the fact being stressed that if a reply is not received forthwith, it is more than probable that no action will be possible later.

Next Meeting.

15. It was agreed that a date for the next Meeting should not be fixed until it was known when the information from 21 Army Group referred to above would be forthcoming. It was also decided to inform Air Commodore Kingston McCloughry, A.E.A.F., Norfolk House, that it is not possible to produce the Paper on the proposition he has asked for, until all the information from 21 Army Group is available, and has been investigated at the next Meeting. Furthermore, it was agreed that S.A.B.C., A.E.A.F. should be advised that the letter from Headquarters, A.D.G.B., referred to in paragraph 13 above, also cannot receive attention until after the next Meeting.

A. Harney N 15336

Group Captain,
Ops. 1, A.E.A.F.
Chairman.

Copies to: ADGB/MS.35502/Ops.5A.
ADGB/MS.36837/Ops.5A.

McCloughry - *McCloughry* Norfolk House
Headquarters, A.E.A.F. *13/1/44* *13/1/44* *13/1/44*
13/1/44 *13/1/44* *13/1/44*
Kestrel Grove, Stamora.

ADGB/MS.13296/Air.
1st January, 1944.

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HEADQUARTERS, ALLIED EXPEDITIONARY AIR FORCE,
KESTREL GROVE, HIVE ROAD,
STANMORE, MIDDLESEX.

Ref: AEAF/MS.13296/Air. Copy No. 3. 26th January, 1944.

Subject: Operation "OVERLORD" - Balloon Defences.

To: Members of Committee. (As listed)

The following Committee has been formed to deal with matters concerning Mark VI balloon requirements:-

- Copy No.
- 1 Group Captain A.V. Harvey, C.B.E. - Ops. 1., A.E.A.F. (Chairman)
 - 2 Wing Commander W.F. Blackadder, D.S.O. - Ops. 1A., A.E.A.F.
 - 3 Lt. Colonel E.F. Kingsley, R.A. - Ops. 6B., A.E.A.F.
 - 4 Major Berry, R.A. - 21 Army Group.
 - 5 Wing Commander R.C. Longsdon *big* - ~~21 Army Group~~ AEAF.
 - 6 Group Captain Lord Ashburton - Ops., Balloon Command.
 - 7 Group Captain J.N. Browne - Org., Balloon Command.
 - 8 Wing Commander, J.G. Hudson - Ops. 5A., A.D.G.B.
Destroyed later.

2. The first Meeting will be held in Group Captain A.V. Harvey's office, Room "P", (Ground Floor, old Equipment Block), at BENTLEY PRIORY, STANMORE, at 1430 hours on Friday, 28th January, 1944.

3. Agenda enclosed.

J.G. Hudson

J.G. HUDSON
Wing Commander, R.A.F. N 15337
(Extension 231).

Copies, for information, to:

- Copy No. 9 Air Commodore E.J. Kingston-McCloughry, C.B.E., D.S.O., Norfolk House. D.F.C.,
- 10 Air Commodore G.H. Ambler, C.B.E., A.F.C., A.D.C., Headquarters, A.D.G.B.
- 11 File - ADGB/MS. 36837/Ops. 5A.
- 12 G/C. Salma. Norfolk House.

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AGENDA

36

1. Whether the Port and Beach Units formed under authority S.D.155 are in conformity with the Technical requirements.
2. Suitability of the present orders in S.D.155 to establish Beach Balloon Units on A.E.A.F. or T.A.F. forthwith, and to establish Port Balloon Units on Balloon Command to be transferred to T.A.F. immediately prior to deployment.
3. Establishment of Senior Balloon Officers for duty with T.A.F. in the field.
4. Estimated duration of deployment for Port and Beach Units.
5. Policy of balloon flying for Beach Balloon Units in initial assault.
6. Extension of beaches to be defended.
7. Policy of Replenishment Stores for Beach Units.
8. Transportation of Beach Units and their replenishment supplies.
9. Suitability of placing the Beach Balloon Units under the administrative control of R.A.F. Beach Units and the operational control of the Senior Army Beach Commander.
10. Whether Beach Units will be required to move after their initial deployment.
11. Channels of communication for the replenishment of equipment and M.T. for Beach Units prior to deployment.
12. Channels of communication for moving Port Squadrons and Flights to locations in this country and to Ports of Embarkation.
13. Embarkation, disembarkation and deployment of Port Units.
14. Flying Policy of Port Units in ~~initial~~ landing.
15. Move of Port Units after initial deployment.
16. Training of Port Units, including Wet-Shod training.
17. Re-deployment overseas of Home Port Units.
18. Hydrogen supplies.
19. Further Mark VI balloon defences, vide letter from H.Q., A.D.G.B. to H.Q., A.E.A.F., reference ADGB/S.36051/Air dated 22nd January, 1944.
20. Retention of South Wales L.Z. barrages.
21. Other business.

AEAF/MS.13296/Air.

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