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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This volume contains the detailed data supporting the analysis of the expeditionary airfield concept, as documented in the basic report. Scenario-related operational requirements and proposed alternative expeditionary airfield configurations are discussed, as well as total force quantitative requirements for expeditionary airfields. A detailed listing of aircraft and expeditionary airfield systems/equipment performance characteristics is also provided.

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MAGTF(s)	Commitment Requirements
3 MAFs	2
2 MAFs	3
1 or 2 MAFs	3
1 MAF	12
1 MAB 1/	9 2/
2 MAUs	1 3/
1 MAU	2 4/

In addition to the MAGTF commitments shown, a requirement is also stated for each of the following size division wing teams (DWT): 6/9, 8/9, 1 3/9, and 1 5/9.

Types of missions envisaged in current planning for employment of Marine air-ground task forces cover the spectrum of military operations relevant to actual or potential conflict situations or peacetime presence. Stated missions include amphibious assault, seizure and defense of island bases or littoral areas, reinforcement of in-theater forces, land warfare role, beachhead defense to cover withdrawal of other forces, counter-insurgency operations, protection/evacuation of US and other non-combatant nationals, stability operations in support of friendly governments and show of force.

2.3 (S) Potential Employment Areas/Countries for MAGTFs. Potential areas and countries for the employment of MAGTFs with associated force requirements, as derived from the MMROP, are shown in tables A-1 and A-2. Marine forces could be employed in combined, joint or unilateral operations in specific areas of northern, central and southern Europe, the Mediterranean, Middle East, northeast and southeast Asia, the Caribbean,

NOTES:

1. Marine amphibious brigade
2. Includes forward afloat deployment - Mediterranean
3. Forward afloat deployment - PACOM
4. Includes forward afloat deployment - LANTCOM

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and North and Central America. The possible operational locales for MAGTF employment in NATO defense in Europe include Norway, Denmark, Iceland, and the Faeroes and Shetland Islands on NATO's north flank and the Strait of Gibraltar, Mediterranean littoral, and the Aegean Sea/ Dardanelles on the south flank. Marine forces also may be committed to reinforce defenses in NATO's Central Region or to secure a beachhead to cover the withdrawal of other forces. In addition, it is recognized that a NATO war may not be confined to Europe and Marine forces may be assigned tasks in other areas during a NATO conflict, such as countering or preempting Soviet moves in the Middle East/Persian Gulf to preserve US access to oil; assisting in defense of the approaches to the Panama Canal; reinforcing Guantanamo Naval Base in Cuba; protecting sea lines of communications by seizing/defending key islands or littorals which control passages such as the Suez Canal, Strait of Malacca, Gulf of Aden, Strait of Hormuz and Korean Strait, seizing/defending advanced naval bases in the Indian or Pacific Oceans, and assisting in the defense of the Aleutian Islands and Alaska.

Possible operational areas for MAGTF employment, either under conditions of limited, localized conflict with the Soviet Union or on a US unilateral basis and not involving USSR or PRC combat forces, include Iran and other Persian Gulf areas, the Arabian Sea, Israel and other eastern Mediterranean areas, and the Indian Ocean.

MAGTF commitment requirements in PACOM are specified for participation in combined defense operations against PRC forces in Korea or southeast Asia; assisting Japanese Self Defense Forces to resist Soviet aggression; assisting

in the defense of Taiwan against a PRC threat; counter-insurgency support in Thailand, Burma and Malaysia, and evacuation of US and other nationals from Hong Kong.

Under conditions of unilateral US military intervention, Marine forces may be required in the Caribbean for such missions as reinforcing the defense of Guantanamo Naval Base or other operations in Cuba, and stability operations and protection of US citizens and property in countries such as Haiti, the Dominican Republic, Trinidad, Tobago, Jamaica and the Bahamas.

3. (S) AVAILABILITY AND CHARACTERISTICS OF AIRFIELDS IN POTENTIAL CONTINGENCY AREAS

3.1 (S) Airfield Availability Analysis.

3.1.1 Purpose and scope. The availability of existing airfields suitably located for airbasing support of amphibious operations bears significantly upon the investigation of overall expeditionary airfield requirements. Accordingly, a representative selection of contingency areas for possible employment of Marine air-ground task forces, based upon the possible commitment requirements summarized in paragraph 2, was examined to establish a comprehensive data base reflecting the locations, capabilities and characteristics of those existing airfields that would be suitably located for support of amphibious operations and subsequent operations ashore. This analysis was structured around the major landing beaches in each contingency area, as identified and described in CIA National Intelligence Surveys, (Chapter II - Military Geography, Section 22 - Coasts and Landing Beaches). In the analysis only those major landing beaches were considered which would provide access to important

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objectives such as governmental, industrial or resource-producing areas and/or major transportation networks.

The airfield availability data contained in this appendix are based on detailed evaluation of the distributions and characteristics of major landing beaches and associated existing airfields in the following selected contingency areas:

- Denmark - Jutland Peninsula west coast
- Norway - south and southwest coasts
- Morocco - Strait of Gibraltar (east and west) and Mediterranean coastline to the Algerian border
- Persian Gulf - coastlines of Iraq, Kuwait, Saudi Arabia, Bahrain and Qatar. (Potential theater air base locations in Iran are reflected.)
- Israel and the Sinai Peninsula - coastline of Israel and the Mediterranean coastline of the Sinai Peninsula
- North Korea - east and west coasts
- South Korea - east and west coasts
- Venezuela - northwest coast including the Gulf of Venezuela

3.1.2 Criteria for inclusion of airfields in the availability data base. Existing airfields in each contingency area were selected for inclusion in the availability analysis based solely on their locations relative to a major landing beach. In order to develop a comprehensive airfield availability data base for support of the study, no constraints were applied in airfield selection at this stage based on the current capabilities or usage of the airfields. The following specific criteria in respect to

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the locations of existing airfields relative to the selected major landing beaches were applied in the development of the airfield data base.

3.1.2.1 Airfields in potential beachhead areas. These existing airfields were selected which reasonably could be expected to be located within a beachhead line commensurate with the type and extent of the major landing beach. A limit of 10 statute miles inland from the landing beach was applied in identifying potential beachhead airfields. This constraint was based primarily, but not solely, upon the capabilities of the bulk fuel company of the force service regiment to transfer Class III (A) fuel from the beach to Marine air facilities established inland. As defined in FMFM 4-4 Engineer Operations, the bulk fuel platoon of the bulk fuel company is capable of operating two amphibious assault fuel systems (AAFS). Each AAFS contains material to transfer fuel a maximum distance of four miles inland over terrain with an elevation differential not exceeding 260 feet. Although this range can be extended by additional booster pumps, bulk fuel is not transferred by hoseline for extended distances within the objective area, except under unusual conditions. It is considered that the 10 statute mile limit is sufficiently deep inland to encompass those airfields which would be suitably located for initial use after establishment of the landing force ashore.

3.1.2.2 Airfields offshore of landing beaches. The airfield availability survey included those existing airfields situated on islands or peninsulas within a radius of 50 nautical miles from the landing beach. Air support operations highly responsive to the needs of the landing force could be conducted from offshore airfields located within such a radius.

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3.1.2.3 Theater airfields. Existing airfields located within a 250 nautical mile radius of the landing beach were identified as potential "theater" airfields for consideration in the subsequent development of suitable phased air basing postures related to each of the major landing beaches. This 250 nautical mile air basing limit for support of amphibious operations is reflected in the DOD Close Air Support Study, Joint Task Force Phase II, Volume IV, Basing and Logistics. In the identification of theater airfields, the potential availability of each airfield for US use in contingency operations was considered in the light of US alliances and political relationships among nations in the area.

3.1.3 Basic reference source for airfield availability data base. The locations and characteristics of the existing airfields which would be suitably located for support of amphibious operations across the selected major landing beaches in each contingency area were assembled using primarily the DIA Airfields and Seaplane Stations of the World (ASSOTOW) as the basic reference source.

3.2 (S) Airfield Availability and Characteristics.

3.2.1 Summary availability of airfields to major landing beaches. In summary, analysis of the availability of existing airfields for support of amphibious operations considered the littorals of eight diverse contingency areas for possible employment of Marine air-ground task forces - Denmark and Norway in northwest Europe; Morocco, including the Strait of Gibraltar and contingent Atlantic and Mediterranean coasts; the Persian Gulf coast of the Arabian Peninsula; Israel and the Mediterranean coast of the Sinai Peninsula; the entire coastlines of North and South Korea, and the northwest coast of Venezuela which provides access to the Maracaibo oil areas. A total of 53 major landing beaches

Table A-1

(S) MAGTF COMMITMENT REQUIREMENTS (S)

General Conditions	Operational Area(s)	Type Mission(s)	MAGTFs
Case 1			
War with USSR NATO defense (against Soviet, other Warsaw pact forces)	Norway, Denmark, Thrace	Operations on either or both NATO flanks. Amphibious assault(s) may or may not be involved.	1 or 2 MAFs
	Iceland, Faeroe Is., Shetland Is.	Seize and/or defend key points	up to 1 MAF
	Skaggerack/Kattegat Straits Aegean Sea/Dardanelles Strait of Gibraltar	Raids; seize and/or defend key points	1 or 2 MAFs
	Belgium, Netherlands	Beachhead defense to cover withdrawal of other NATO forces	2 MAFs
	NATO Central Region	Reinforce NATO defense (deploy through ports)	1 MAF
	Mediterranean Coast	Amphibious assault(s)	1 or 2 MAFs
Other operations (against Soviet forces)	Middle East/Persian Gulf	Counter/preempt Soviet move(s)	1 MAF
	Panama Canal	Assist in defense of sea/air approaches	1 MAB
	Guantanamo Naval Base, Cuba	Reinforce defense	1 MAB

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Table A-1 (continued)

(S) MAGTF COMMITMENT REQUIREMENTS (S)

General Conditions	Operational Area(s)	Type Mission(s)	MAGTFs
Case 1 (continued)			
Other operations (cont'd) (Against Soviet forces)		Provide CINCPAC theater reserve	1 MAF (minimum)
	Suez Canal, Strait of Malacca, Gulf of Aden, Persian Gulf, Strait of Hormuz, Korea Strait, La Perouse Strait	Seize/defend islands/ littorals	
	Indian Ocean/Pacific Ocean	Seize and defend advanced naval bases	
	Aleutian Islands, Alaska	Assist in defense	
	USSR	Raids/other amphibious operations	
Forward afloat deployments	Atlantic/Caribbean		1 MAU[1/]
	Western Pacific		2 MAUs[1/]
Case 2			
Combined defense Northeast Asia (Against PRC forces)	North/South Korea	Reinforce in-theater forces; defense	1 MAF

(1/ Maintained during commitments in EUCOM, Middle East; included in LANTCOM, PACOM Commitments.)

Table A-1 (continued)

(S) MAGTF COMMITMENT REQUIREMENTS (S)

General Conditions	Operational Area(s)	Type Mission(s)	MAGTFs
Case 2 (continued)			
Combined defense Northeast Asia (Against PRC forces)		Amphibious assault or land warfare role	1 MAF (2 MAFs total)
		Amphibious assault	1 MAF (3 MAFs total)
Combined defense Southeast Asia (Against PRC forces	Burma, Thailand, Cambodia, Laos, South Vietnam, Malaysia	Same as NE Asia	Same as NE Asia
(Against non-PRC forces)	Same	Not defined	1 MAF
Forward afloat deployments	Mediterranean		1 MAB 2/
	Atlantic/Caribbean		1 MAU 2/
	(2/Maintained during NE/SE Asia contigencies)		
Case 3			
Limited US/USSR confrontation (not simultaneously with NATO conflict or in NATO Europe)	Iran	Not defined (Support Iran in event of USSR intervention in Iraq/Iran conflict)	1 3/9 (Division wing teams) (DWTs)
	Israel, Egypt, Syria, Jordan	Not defined (Support Israel in event of USSR intervention in Arab/Israeli conflict)	1 MAF

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Table A-1 (continued)

(S) MAGTF COMMITMENT REQUIRFMENTS (S)

General Conditions	Operational Area(s)	Type Mission(s)	MAGTFs
Case 3 (cont'd)			
Limited US/USSR confrontation	Arabian Sea/Persian Gulf (3/ Includes WESPAC forward afloat deployment)	Not defined	1 MAB 3/
	Japan and other Japanese territories	Support Japanese Self Defense Forces	Up to 1 MAF
Forward afloat deployments	Western Pacific (4/ Maintained during Middle East contingency)		2 MAUs 4/
	Mediterranean		1 MAB 5/
	Atlantic/Caribbean (5/ Maintained during commitment of Pacific forces)		1 MAU 5/
Case 4			
Unilateral military action (Not involving USSR or PRC combat forces)	Middle East Israel, Egypt, Syria, Jordan	Not defined (Support Israel in Arab/Israeli conflict)	1 MAF
	Arabian Sea	Deployed currently with MAF commitment in Iran.	1 MAU
	Iran	Not defined (Support Iran in Iraq/ Iran-Kuwait conflict)	1 MAF or 1 MAB
	Persian Gulf (oil areas)	Deployed concurrently with MAF commitment in Iran	1 MAB

Table A-1 (continued)

(S) MAGTF COMMITMENT REQUIREMENTS (S)

General Conditions	Operational Area(s)	Type Mission(s)	MAGTFs
Case 4 (cont'd)			
Contingencies	Pacific	Reinforce allied forces	1 MAF
North Korean aggression (No PRC support)	Korea		
	Hong Kong	Evacuate US, other designated citizens	up to 1 MAB
PRC aggression	Taiwan	Assist in defense	up to 1 MAF (estimate)
Insurgency	Thailand, Burma, Malaysia	Counter-insurgency	1 MAB to 1 MAF
NVN intervention	Thailand, Burma, Malaysia	Counter-insurgency and defense	2 MAFs
Cuban aggression against Guantanamo Naval Base	Caribbean Cuba	Reinforce defense, evacuate dependents	8/9 DWT, reinf. by 6/9 DWT, if required.
Invasion of Cuba	Cuba	Amphibious assault(s)	1 5/9 DWTs (initial)
Other contigencies	Haiti, Dominican Republic Trinidad, Panama, Bahamas	Show of force, protection/ evacuation of US citzens, stability operations	1 MAB (estimated)

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Table A-1 (continued)

(S) MAGTF COMMITMENT REQUIREMENTS (S)

General Conditions	Operational Area(s)	Type Mission(s)	MAGTFs
Case 5			
Peacetime force presence	Forward afloat deployments		
	PACOM - Pacific Area	Amphibious assault, assistance to allies, protection/evacuation of US and friendly foreign nationals, protection of US property	2 MAUs
	USEUCOM - Mediterranean		1 MAB
	LANTCOM - Atlantic, Caribbean		1 MAU

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Table A-2

(S) POTENTIAL EMPLOYMENT AREAS FOR MAGTFs (S)

AREAS	MAF(s)	MAB(s)	MAU(s)
Norway	1 or 2		
Denmark	1 or 2		
Skaggerack/Kattegat Straits	1 or 2		
Strait of Gibraltar	1 or 2		
Mediterranean Coast	1 or 2		
Thrace (Greek/Turkish)	1 or 2		
Aegean Sea/Dardanelles	1 or 2		
Iceland	up to 1		
Faeroe Is./Shetland Is.	up to 1		
Belgium/Netherlands	2		
West Germany/Netherlands	1		
Iran	1 or $1\frac{3}{9}$ DWT [1/]	or 1	
Persian Gulf	1	or 1	
Arabian Sea	1	or 1	or 1
Indian Ocean	1		
Israel	1		
Egypt	1		
Syria	1		
Jordan	1		
North/South Korea	1 to 3		
Japan	up to 1		
Hongkong		up to 1	
Taiwan	up to 1		
Burma	1 to 3	or 1	
Thailand	1 to 3	or 1	
Cambodia	1 to 3	or 1	
Malaysia	1 to 3	or 1	
Laos	1 to 3		
South Vietnam	1 to 3		
Aleutian Is./Alaska	1		
Panama	$\frac{1}{8}$	or 1	
Cuba	$\frac{8}{9}$ DWT*	or 1	(*reinf. by $\frac{6}{9}$ DWT, if
Bahamas		1	required)
Dominican Republic		1	
Haiti		1	
Trinidad		1	
Forward Afloat Deployments			
PACOM			2
EUCOM		1	
LANTCOM			1

NOTE: 1. Division wing team

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Table A-3

SUMMARY
(S) AVAILABILITY OF AIRFIELDS RELATED TO MAJOR LANDING BEACHES IN CONTINGENCY AREAS 1/ (S)

CONTINGENCY AREA	NUMBER OF LANDING BEACHES (TOTAL)	NUMBER OF LANDING BEACHES W/AIRFIELD(S) IN BEACHHEAD 2/	NUMBER OF LANDING BEACHES W/AIRFIELDS OFFSHORE 3/
DENMARK (Jutland-West Coast)	2	1	0
NORWAY (South and Southwest Coasts)	2	2	0
MOROCCO (Strait of Gibraltar and Mediterranean Coast)	7	3	0
ISRAEL AND SINAI PENINSULA	5	4	0
PERSIAN GULF (Kuwait, Neutral Zone, Saudi Arabia, Bahrain, Qatar)	10	6	1
NORTH KOREA (East and West Coasts)	10	4	0
SOUTH KOREA (East and West Coasts)	10	7	0
VENEZUELA (Northwest Coast)	7	3	0
TOTALS	53	30	1
PERCENT	100	56.6	1.9

NOTES:

1. All existing airfields have been tabulated regardless of capability.
2. Airfields within the beachhead to 10 statue miles inland.
3. Airfields on islands or peninsulas within 50 nautical miles off the beachhead.

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Table A-4 (continued)

(S) NUMBERS OF AIRFIELDS AVAILABLE TO MAJOR LANDING BEACHES IN CONTINGENCY AREAS (S)

CONTINGENCY AREA / LANDING BEACH	NUMBERS OF AVAILABLE AIRFIELDS IN BEACHHEAD	OFFSHORE	THEATER
PERSIAN GULF			
KUWAIT			
Kuwait City-West	2	0	10[4/]
Kuwait-Southeast	2	0	10
Neutral Zone-North	1	0	10
Neutral Zone-South	0	0	10
SAUDI ARABIA, BAHRAIN AND QATAR			
Ras Al Mishab/As Safaniyah	2	0	10
Tanajib-Dawhat Al Manifah	0	0	10
Dawat Al Manifah-Al Bidah	0	0	10
Barbakh-Jubayl Al Bahri	0	0	10
Jubayal Al Bahri-Al Tannura	[illegible]	0	10
Al Khubal-Ras Buraikat	-	5	5
NORTH KOREA			
EAST COAST			
Chongjin	1	0	3
Hoemun-Ni	1	0	3
Kimchaek	0	0	3
Chaho-Sinchang	0	0	3
Hongwong	0	0	3
Hamhung	1	0	3
Wonsan	3	0	3
WEST COAST			
Changsan-Got-NW	0	0	4
Changsan-Got-SW	0	0	4
Changsan-Got-S	0	0	4
SOUTH KOREA			
EAST COAST			
Kansong	1	0	2
Yangyang	1	0	2
Kangnung	1	0	2

NOTE:

4. Assuming availability of airfields in Iran; otherwise no theater/airfields would be available for support of operations in Kuwait, Saudi Arabia, Neutral Zone, Bahrain, or Qatar.

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Table A-4 (continued)

(S) NUMBERS OF AIRFIELDS AVAILABLE TO MAJOR LANDING BEACHES IN CONTINGENCY AREAS (S)

CONTINGENCY AREA / LANDING BEACH	NUMBERS OF AVAILABLE AIRFIELDS IN BEACHHEAD	OFFSHORE	THEATER
Ulchin	0	0	2
Pohang Dong-SE	1	0	4
Pusan-E	1	0	2
WEST COAST			
Popsongpo-NNW	0	0	2
Tongbaekchong Gap — Kunsan	1	0	2
Taean-West	0	0	2
Inchon	1	0	2
VENEZUELA - NORTHWEST COAST			
Puerto Gutierrez	0	0	0
Zazarida	[illegible]	[illegible]	[illegible]
Puerto Cumarebo	0	0	0
Punta Zamuro	0	0	0
San Juan de Los Cayos	1	0	0
Boca de Aroa	1	0	0
Puerto Cabello	1	0	0

Table A-5

(S/NFD) NUMBERS OF BEACHHEAD AIRFIELDS BY RUNWAY LENGTH ASSOCIATED WITH LANDING BEACHES IN CONTINGENCY AREAS (S/NFD)

AREA	TOTAL AFLDS	AIRFIELD RUNWAY LENGTH (FT) 2,000/ 3,000	3,000/ 4,000	4,000/ 5,000	5,000/ 6,000	6,000/ 7,000	7,000/ 8,000	8,000/ 9,000	9,000/ 10,000	10,000/ 11,000	11,000/ 12,000
Denmark (Jutland)	1						1				
Norway	2					1		1			
Morocco	3				1		1				1
Israel/ Sinai	8	2	3		2			1			
Kuwait	4			2		1					1
Neutral Zone	1		1								
Saudi Arabia	5	1	1	1	1				1		
N. Korea	6		1	1		1	1	2			
S. Korea	7	1	1			2		2		1	
Venezuela	3	1	2								
TOTALS	40	5	9	4	4	5	3	6	1	1	2

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Table A-6 (continued)

(S/NFD) CHARACTERISTICS OF AIRFIELDS AVAILABLE IN BEACHHEAD AREAS (S/NFD)

COUNTRY		AIRFIELD CHARACTERISTICS			
LANDING BEACH	AIRFIELD	COND	RUNWAY (length ft)	CAPACITY (ESWL/PSI)	PARKING (SQ FT)
Al Bahri-Tannura	Tanura	Fair	3,200	15,300/56	GF[2/]
	Tanura Refinery	Fair	2,700	3,294/50	GF
Al Khubal-Buraikat	Dharan Intl.	Good	10,000	57,317/190	1,912,100
NORTH KOREA					
Chongjin	Chongjin	Unk	3,900	Unk	Unk
Hoemun-Ni	Hoemun-Ni	Good	8,200	(Badger)	581,800
Kimchaek	No Airfield Available				
Chaho-Sinchang	No Airfield Available				
Hongwon	No Airfield Available				
Hamhung	Sondong-Ni	Good	8,200	(Beagle)	324,000
Wonsan	Wonsan	Good	7,600	(Beagle)	287,800
	Opyong Ni	Fair	6,800	(Fishbed)	GF
	Wonsan S.	Fair	5,000	(Fresco)	GF
Changsan-Got NW	No Airfield Available				
Changsan-Got SW	No Airfield Available				
Changsan-Got S	No Airfield Available				
SOUTH KOREA					
Kansong	R 413	Fair	2,600	40,936/75	60,000
Yangyang	R 407	Good	3,600	40,936/75	12,000

NOTE:

2. General field

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Table A-6 (continued)

(S/NFD) CHARACTERISTICS OF AIRFIELDS AVAILABLE IN BEACHHEAD AREAS (S/NFD)

COUNTRY		AIRFIELD CHARACTERISTICS			
LANDING BEACH	AIRFIELD	COND	RUNWAY (length ft)	CAPACITY (ESWL/PSI)	PARKING (SQ FT)
Kangnung	Kangnung	Good	8,610	40,936/75	153,200
Ulchin	No Airfield Available				
Pohang-Dong	Pohang	Fair	6,500	40,936/75	817,625
Pusan-East	Pusan Intl	Good	6,600	40,936/105	478,075
Popsongpo	No Airfield Available				
Tongbaekchong	Kunsan	Good	9,000	57,317/190	1,179,720
Taean-West	No Airfield Available				
Inchon	Kimpo Intl	Good	10,500	97,920/285	1,594,250
VENEZUELA					
Puerto Gutierrez	No Airfield Available				
Zazarida	No Airfield Available				
Puerto Cumarebo	No Airfield Available				
Punta Zamuro	No Airfield Available				
San Juan de Los Cayos	San Juan de Los Cayos	Fair	3,500	14,200/56	GF
Boca de Aroa	Venepal	Good	2,475	(C-47)	24,000
Puerto Cabello	Puerto Cabello (New)	Good	3,800	12,250/56	Unk

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Table B-3

(U) SUMMARY OF CONFIGURATIONS AT REPRESENTATIVE MISSION GROSS WEIGHT (U)

TYPE AIRCRAFT	TYPE MISSION	FUEL	TYPE PAYLOAD
A-4M	Attack	1/	Full Ammo 8-MK 82
A-6A	Attack	1/	Full Ammo 12-MK 82
AV-8A	Attack	1/	Full Ammo 6-MK 82
F-4J	Fighter	2/	LAU 17 4-AIM 7F 9-AIM 9G
F-14A	Fighter	2/	Full Ammo 4-AIM 54 4-AIM 7F
TA-4F	TAC(A)	Full Int.+ 1-400 gal C/L tank	Full Ammo 2-LAU 3A 1-ALQ 31
RF-4B	Reconn.	Full Int.	1-ALQ 31
EA-6B	ECM	Full Int.+ 1-300 gal C/L tank	4-ALQ 99
AV-16	Attack	1/	Full Ammo 7-MK 82
F-15N	Attack	1/	Full Ammo 12-MK 82 4-AIM 7F
YF-16	Attack	1/	Full Ammo 8-MK 82 2-AIM 9G

NOTES:

1. Attack mission fuel provides for either an attack at 250 N.M. radius or an attack at 50 N.M. radius after one hour loiter whichever is greater, except for A-4M which is constrained by internal fuel to a radius of 197 N.M. or 35 minutes loiter at 50 N.M. and AV-8A which is constrained by internal fuel to a radius of 190 N.M. or 45 minutes loiter at 50 N.M.

2. Fighter mission fuel provides for combat after one hour loiter at a 100 N.M. radius CAP station.

a the F-4J, represents the highest gross weight of either its attack or ...ker configuration.

Maximum takeoff gross weight - The greatest weight for takeoff ...ished by technical orders, design requirements, or other specific ...endations of the Navy.

Representative mission landing gross weight - The landing weight of ...aircraft after completion of a representative mission expending all ...ance and mission fuel. It includes the aircraft's operating weight, ...erve fuel and auxiliary fuel tanks, if used.

Maximum landing gross weight - The greatest weight established for ...ding by flight restrictions, detail specifications, or specific recom- ...ations by the Navy.

1. (U) AIRCRAFT TAKEOFF AND LANDING PERFORMANCE.

The takeoff ground roll and runway length requirements for each ...didate fixed-wing aircraft are presented in Tab 1 to this appendix. ...e runway length requirements identified for each aircraft are the result ...multiplying takeoff ground roll by a safety factor of 1.25. This ...tor, which is discussed in Appendix D, allows for variations in pilot ...niques, runway surface conditions, unfavorable wind conditions, minor ...hanical differences, and psychological influences. The takeoff ground ...l requirements of current aircraft are based on performance data from ...icable NATOPS manuals, while these requirements for future alternative ...t examples were derived as follows:

...-16 - Extrapolated from data in Advanced Harrier Summary, Report ...SA/CON/2, Vol. 1, dated 5 December 1973.

Table B-4

(U) MINIMUM LANDING ROLL DISTANCE
FIXED-WING AIRCRAFT (U)
(Hot day - 103°F, sea Level)

Aircraft Type	Rep. Mission Landing G. W. Dry Runway (ft.)	Rep. Mission Landing G. W. Wet Runway (ft.)	Maximum Landing G. W. Dry Runway (ft.)	Maximum Landing G. W. Wet Runway (ft.)
Current Aircraft				
A-4M	3,700	5,000	4,200	5,400
A-6A	1,890	2,080 1/	2,575	3,050 1/
AV-8A	1,500 2/	3/	2,500 2/	3/
F-4J	2,500	6,000	3,300	7,400
F-14A	2,400	3/	3,250	3/
TA-4F	3,900	5,300	4,400	5,800
EA-6B	1,850	2,035 1/	2,300	2,725 1/
RF-4B	2,400	5,500	2,750	6,250
OV-10A	640 4/	3/	870 4/	3/
KC-130F	2,000	2,800	2,500	3,400
Future Alternative Examples				
AV-16	3/	3/	3/	3/
F-15N	3,000 5/	3/	3/	3/
YF-16	2,750	3/	3/	3/

NOTES:

1. A6A - EA6B. Minimum landing distance. Wet runway factor obtained from critical field length charts.
2. AV-8A - Short field landing. Maximum short landing weight at 103°F is 17,500 lbs.
3. Information not available
4. OV 10A - Dry runway based on maximum performance, full reverse thrust.
5. Estimated from standard and tropical day landing ground roll data.

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TABLE D-2

(U) RUNWAY LENGTH REQUIREMENTS
FOR
CURRENT MARINE COPPS AIRCRAFT (U)

Type Aircraft	Gross Weight (Lbs)	Take off Ground Run at Sea Level; 59°F (ft)	Minimum Length of Runway Required (ft) 1/
AH	21,974 24,500	3,350 4,400	5,200 6,800
A6A	50,672 60,000	2,350 3,900	3,600 6,000
AV8A	19,800 24,000	600 1,500	1,000 2,300
F4J	52,487 56,000	3,000 3,550	4,600 5,500
OV10	11,250 14,400	1,300 2,600	2,000 4,000

NOTE. 1. Distance required when TOR at sea level 59°F is corrected for a temperature of 103°F, a safety factor of 1.25 and an effective gradient of 2% with the result rounded to next larger 100 feet using generalized JCS Pub 3 correction criteria shown in Table D-1.

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TABLE D-3

(U) RUNWAY LENGTH REQUIREMENTS
FOR
MARINE CORPS AIRCRAFT
(Based on NATOPS Data) (U)

Type Aircraft	Gross Weight (Lbs)	Takeoff Ground Run Std, Day (ft)	Minimum Runway Length Required Hot Day (ft) 1/
	For Representative Mission Gross Weight 2/		
A4M	21,974	3,350	5,200
TA4F	21,652	3,450	6,200
A6A	50,672	2,350	5,000
AV8A	19,800	600	1,000
	22,670	1,050	1,800
EA6B	53,376	2,150	4,100
F4J	52,487	3,000	4,900
F14	62,141	1,550	2,300
RF4B	44,739	2,300	3,600
OV10	12,100 3/	1,300	2,000
KC130F	13[illegible],000	2,850	4,400
	100,000	1,650	2,500
	For Maximum Gross Weight		
A4M	24,500	4,400	6,900
TA4F	24,500	5,000	8,200
A6A	60,000 4/	3,900	6,600
AV8A	24,000	1,500	2,200
EA6B	61,500	3,000	6,500
F4J	55,000	3,550	5,700
F14	69,800	1,900	2,800
RF4B	54,800	3,500	5,900
OV10	14,400	2,600	5,500
	12,850 5/	1,900	4,800
KC130F	145,000	3,350	5,200

NOTE: 1. Includes 1.25 safety factor/rounded to next larger 100 ft.

2. See Table D-3A for summary of configurations at representative mission gross weights.

3. Hot day single engine limitation (STOL) reduces TOGW to 11,250 lbs.

4. Hot day MGTOW is limited to 57,500 lbs.

5. Std day single engine limitation reduces MGTOW from 14,400 to 12,850 lbs and hot day single engine limitation reduces TOGW to 11,500 lbs (normal takeoff).

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TABLE D-3A

(U) SUMMARY OF CONFIGURATIONS AT REPRESENTATIVE MISSION GROSS WEIGHT (U)

TYPE AIRCRAFT	TYPE MISSION	FUEL	TYPE PAYLOAD
A4M	Attack	(1)	Full Ammo 8-MK 82
A6A	Attack	(1)	Full Ammo 12-MK 82
AV8A	Attack	(1)	Full Ammo 6-MK 82
F4J	Fighter	(2)	Lau 17 4-AIM7F 4-AIM9G
F14A	Fighter	(2)	Full Ammo 4-AIM54 4-AIM7F
TA/F	TAC(A)	Full Int.+ 1-400 Gal C/L Tank	Full Ammo 2-LAU3A 1-ALQ31
RF4B	Reconn.	Full Int.	1-ALQ31
EA6B	ECM	Full Int.+ 1-300 Gal C/L Tank	4-ALQ99

NOTE:

1. Attack mission fuel provides for either an attack at 250 N.M. radius or an attack at 50 N.M. radius after one hour loiter whichever is greater, except for A4M which is constrained by internal fuel to a radius of 197 N.M. or 35 minutes loiter at 50 N.M. and AV8A which is constrained by internal fuel to a radius of 190 N.M. or 45 minutes loiter at 50 N.M.

2. Fighter mission fuel provides for combat after one hour loiter at a 100 N.M radius CAP station.

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(U) SUMMARY OF TYPICAL AIRFIELD CHARACTERISTICS
FOR MARINE CORPS AIRCRAFT
W/O CATAPULT AND ARRESTING GEAR (U)

AIRCRAFT TYPE	RUNWAY LENGTH FT.	RUNWAY WIDTH FT.	RUNWAY AREA SQ. FT.	END TAXIWAY/ HOLDING PAD SQ. FT. 1/	PARALLEL TAXIWAY SQ. FT. 2/	PARKING AREA PER AIRCRAFT SQ. FT.
A4M	5,200	72	374,400	24,000	260,000	5,680
A6A	5,000	72	360,000	24,000	250,000	14,520
AV8A	1,800	72	129,600	24,000	90,000	5,830
AV8A	1,000 3/	72	72,000	24,000	50,000	5,830
F4J	4,900	72	352,800	24,000	245,000	11,175
F14A	2,300	72	165,600	24,000	115,000	19,840
EA6B	4,100	72	295,200	24,000	205,000	15,741
R4FB	3,600	72	259,200	24,000	180,000	12,075
KC130F	4,400	72	316,800	24,000	220,000	45,388
OV10A	2,000	72	144,000	24,000	100,000	7,960
AH1J	500	60	30,000	9,600	20,000	14,070
UH1N	500	60	30,000	9,600	20,000	16,500
CH46	500	60	30,000	9,600	20,000	25,290
CH53	500	60	30,000	9,600	20,000	38,262

NOTE: 1. End taxiway/holding pad area = 4 (120 X 50)
2. Parallel taxiway area = runway length X 50 for fixed wing (X 40 for helicopters)
3. Runway length for STOL

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3.2 (C) Availability and Characteristics of Existing Airfields. The construction effort and time required for development of an operational expeditionary airfield can be reduced significantly by use of an existing air facility in the objective area. Although the facility may be deteriorated through disuse or damaged by combat operations, the availability of prepared runways, taxiways and other operating areas usually will reduce significantly the time and construction resource requirements for development of an operational expeditionary airfield. The following summary, extracted from Table A-6, Appendix A, shows the availability and characteristics of existing airfields in the beachhead areas of the 53 major landing beaches worldwide that have been examined.

CONTINGENCY AREA NO. OF LANDING BEACHES	LANDING BEACHES W/AIRFIELDS TOTAL	<5000'*	5000' AND >**	LANDING BEACHES W/O AIRFIELDS
Denmark/2	1	0	1(W/1 good afld.)	1
Norway/2	2	0	2(Each W/1 good afld.)	0
Morocco/7	3	0	3(Each W/good afld.)	4
Israel/Sinai/5	4	2	2(1 W/1 good afld.) (1 W/1 poor and 1 unk. afld.)	1
Persian Gulf/10	6	2	4(1 W/1 good and 1 unk. afld.) (1 W/1 fair and 1 unk. afld.) (1 W/1 fair afld.) (1 W/1 good afld.)	4
North Korea/10	4	1	3(2 each W/1 good afld) (1 W/1 good and 2 fair aflds.)	6
South Korea/10	7	2	5(4 each W/1 good afld.) (1 W/1 fair afld.)	3
Venezuela/7	3	3	0	4
TOTALS 53	30	10	20(17 W/good aflds) (3 W/fair aflds)	23
PERCENT 100	(57.0)	(19.0)	(38.0)	(43.0)

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Number of landing beaches W/airfields of runway lengths <5000'.

Number of landing beaches W/airfields of runway lengths 5000' or>. (Generally adequate for support of initial air operations). The number and condition of airfields per beach is shown in ( ). Airfield condition (DIA ASSOTOW): good-capable of sustained operations; fair-adequate for limited operations; unknown-condition cannot be determined.

In essence, of the 53 beachhead areas examined:

- Thirty (57%) of the beachheads have existing airfields; of these beaches, 20 have airfields with runways 5000' or greater in length (17 in good condition, 3 in fair condition).
- Ten (19%) of the beachheads include only airfields less than 5000' in length.
- Twenty-three (43%) of the beachheads include no existing airfields.

The relative availabilities of existing airfields in the major beachhead areas examined, as shown above, indicate that planning for site preparation of expeditionary airfields must address construction requirements for two basic conditions:

(1) Expansion and/or repair of an existing air facility, and

(2) Development of an unprepared site.

(C) TERRAIN CHARACTERISTICS AFFECTING EXPEDITIONARY AIRFIELD CONSTRUCTION IN BEACHHEAD AREAS.

4.1 (U) Minimum Terrain Criteria. In consideration of the major construction effort which must be accomplished within a limited time for installation of an expeditionary airfield at an unprepared site, DB 4-61 established certain minimum terrain criteria which were regarded as essential for installing a SATS in 120 hours or less:

Table E-1 (cont'd)

(C) TERRAIN CHARACTERISTICS IN BEACHHEAD AREAS (C)

LANDING BEACH	SOIL TYPES	FIELD CBR	VALUE AS FOUNDATION	DRAINAGE	GRADING REQUIRED
SAUDI ARABIA (cont'd)					
Al Khubal-Buraikat	Silty sand, silt and clay	10-20	Unsuited	Very poor, subject to frequent flooding	Replacement with suitable subgrade material
	Coarse-grained, poorly graded sand and gravel	10-25	Fair to good	Good	Minimal
NORTH KOREA-E/COAST					
Chongjin	Silty and clayey sands	10-20 5-15	Fair to good	Poor to practically impervious	Extensive
	Sandy silt and silty sand	10-20	Fair to good	Fair to good.Poor to practically impervious	Minor
Hoemun-Ni	Silty and clayey sands	10-20 5-15	Fair to good	Poor to practically impervious Fair to good	Little to moderate
	Sandy silt and silty sand	10-20	Fair to good	Poor to practically impervious Fair to good	Little to moderate

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Table E-1 (cont'd)

(C) TERRAIN CHARACTERISTICS IN BEACHHEAD AREAS (C)

LANDING BEACH	SOIL TYPES	FIELD CBR	VALUE AS FOUNDATION	DRAINAGE	GRADING REQUIRED
NORTH KOREA-EAST COAST(cont'd)					
Kimchaek	Sandy silt and silty sand	10-20 5-15	Poor	Poor	Little to moderate
	Gravelly silty sand, silt and clay	20-40	Fair to good	Fair to good	Extensive
Chaho-Sinchang	Silty and clayey sands	10-20	Fair to good	Poor to practically impervious	Extensive
	Sandy silt and silty sand	5-15 10-20	Fair to good	Fair to good	Minor
	Gravelly silty sand, silt and clay	20-40	Fair to good	Poor to practically impervious Fair to good	Minor
Hongwon	Silty and clayey sands	10-20	Fair to good	Poor to practically impervious Fair to good	Little to moderate
	Gravelly silty sand, silt and clay	20-40	Fair to good	Fair to good	Extensive

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(U) TERRAIN CHARACTERISTICS IN BEACHHEAD AREAS (U)

LANDING BEACH	SOIL TYPES	FIELD CBR	VALUE AS FOUNDATION	DRAINAGE	GRADING REQUIRED
NORTH KOREA- EAST COAST(cont'd)					
Hamhung	Silty and clayey sands	10-20 5-15	Fair to good	Practically impervious Fair to good	Extensive
	Sandy silt and silty sand	10-20	Fair to good	Poor to practically impervious	Minor
	Gravelly silty sand, silt and clay	20-40	Fair to good	Fair to good	Extensive
Wonsan	Silty and clayey sands	10-20	Fair to good	Practically impervious Fair to good	Extensive
	Sandy silt and silty sand	10-20 5-15	Fair to good	Poor to practically impervious	Minor
	Gravelly, silty sand, silt and clay	20-40	Fair to good	Fair to good	Extensive
NORTH KOREA- WEST COAST					
Changsan Got-NW	Sandy silt and silty sands	20-40 5-15	Poor to good	Poor to practically impervious	Minor

(U) TERRAIN CHARACTERISTICS IN BEACHHEAD AREAS (U)

LANDING BEACH	SOIL TYPES	FIELD CBR	VALUE AS FOUNDATION	DRAINAGE	GRADING REQUIRED
NORTH KOREA-W/COAST(cont'd)					
Changsan-Got-NW(cont'd)	Clays and silt, deep	5-15	Fair to poor	Poor	Little
	Gravelly silty sand, silt and clay	20-40	Fair to good	Fair to good	Extensive
Changsan Got-SW	Gravelly silty sand, silt and clay	20-40	Fair to good	Fair to good	Little to extensive
Changsan Got-S	Gravelly silty sand, silt and clay	20-40	Fair to good	Fair to good	Extensive
	Clays and silt	5-15	Fair to poor	Poor	Little
SOUTH KOREA-E/COAST					
Kansong	Silty and clayey sands	10-20	Fair to good	Fair to poor; poor to practically impervious	Little to moderate
	Sandy silt and clay, with rock fragments	5-15	Fair to poor	Fair to poor	Little to moderate
Yangyang	Silty and clayey sands	10-20	Fair to good	Fair to poor	Little to moderate
	Sandy silt and clay, with rock fragments	5-15	Fair to poor	Poor to practically impervious	

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(C) TERRAIN CHARACTERISTICS IN BEACHHEAD AREAS (C)

LANDING BEACH	SOIL TYPES	FIELD CBR	VALUE AS FOUNDATION	DRAINAGE	GRADING REQUIRED
SOUTH KOREA-E/COAST(cont'd)					
Kangnung	Silty and clayey sands	10-20	Fair to good	Fair to poor	Little to moderate
	Sandy silt and clay, with rock fragments	5-15	Fair to poor	Poor to practically impervious	Little to moderate
Ulchin	Silty and clayey sands	10-20	Fair to good	Fair to poor	Little to moderate
	Sandy silt and clay, with rock fragments	5-15	Fair to poor	Poor to practically impervious	Little to moderate
Pohong-Dong	Silty and clayey sands	10-20	Fair to good	Fair to poor Poor to practically impervious	Little to moderate
	Clay, sandy silt, silty sand	5-15 10-20	Poor to very poor, fair to poor, fair to good	Fair to poor, poor to practically impervious	Little to moderate
Pusan-East	same	same	same	same	same

(C) TERRAIN CHARACTERISTICS IN BEACHHEAD AREAS (C)

LANDING BEACH	SOIL TYPES	FIELD CBR	VALUE AS FOUNDATION	DRAINAGE	GRADING REQUIRED
SOUTH KOREA-W/COAST					
Popsongpo-NNW	Clays and silt	5-15	Fair to poor	Practically impervious Fair to poor	Little to moderate
	Silty and clayey sands	10-20	Fair to good	Fair to poor; poor to practically impervious	Little to moderate
Tongbaekchong	Clays and silt	5-15	Fair to poor	Practically impervious; fair to poor	Little to moderate
	Clay, sandy silt and silty sand	5-15 10-20	Poor to very poor, fair to poor, fair to good	Practically impervious: fair to poor, Poor to practically impervious	Little to moderate
Taean-West	Silty and clayey sands	10-20	Fair to good	Fair to poor Poor to practically impervious	Little to moderate
	Clays and silt	5-15	Fair to poor	Practically impervious Fair to poor	Little to moderate

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Table E-1 (cont'd)

(C) TERRAIN CHARACTERISTICS IN BEACHHEAD AREAS (C)

LANDING BEACH	SOIL TYPES	FIELD CBR	VALUE AS FOUNDATION	DRAINAGE	GRADING REQUIRED
SOUTH KOREA-W/COAST(cont'd)					
Inchon	Silty and clayey sands	10-20	Fair to good	Fair to poor Poor to practically impervious	Little to moderate
VENEZUELA					
Puerto Gutierrez	Silty clay and clay of high plasticity	5-15 3-5	Fair to unsuited	Very poor to practically impervious	Minimal
	Sandy silt, silty sand Organic soil layers in places	5-15 -	Fair to good Unsuited	Fair to poor Fair to poor	Minimal Minimal
Zazarida	Silty clay and clay of high plasticity	5-15 3-5	Fair to Unsuited	Very poor to practically impervious	Minimal
	Sandy silt, silty sand Organic soil layers in places	5-15 -	Fair to good Unsuited	Fair to poor Fair to poor	Minimal Minimal
Puerto Cumarebo	Silty clay and clay of high plasticity	5-15 3-5	Fair to unsuited	Very poor to practically impervious	Minimal

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Table F-4

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES			
					CTOL		HELO	
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA (1000 ft²)	NUMBER OF AIRFIELDS	PARKING AREA (1000 ft²)	NUMBER OF AIRFIELDS	PARKING AREA (1000 ft²)
DENMARK(JUTLAND)[1]								
Esbjerg	Esbjerg	7,218	Good	Unk	2	2,023	2	5,268
Lokken	NONE				3	2,023	2	5,268
					5[2]	4,046	4	10,536
NORWAY[1]								
Kristiansand-Farsund	Kjevik	6,233	Good	64	2	1,959	2	5,268
Egersund-Stavanger	Sola	8,366	Good	1,724	2	299	2	5,268
					4[2]	2,258	4	10,536
MOROCCO[1]								
Larache-North	NONE				3	2,023	2	5,268

NOTES:

1. Based on notional airfield requirements for one MAF; i.e., three MAG CTOL airfields with 2,022,912 sq. ft. total parking area and two MAG helo airfields with 5,268,096 sq. ft. total parking area.
2. Total deficiencies in contingency area for maximum commitment requirement for two MAFs.

Table F-4 (cont'd)

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES			
					CTOL		HELO	
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)
MOROCCO (cont'd)								
Arcila-Cap Spartel	Tangier	11,483	Good	435	2	1,588	2	5,268
Tangier-Ceuta		NONE			3	2,023	2	5,268
Ceuta-Cabo Negro		NONE			3	2,023	2	5,268
Cabo Negro-Cabo Mozzari	Tetuan	5,577	Good	202	2	1,821	2	5,268
Sanjurjo-Punta Carcel	Hoceima	7,087	Good	68	2	1,955	2	5,268
El Borch-Algerian Border		NONE			3	2,023	2	5,268
ISRAEL/SINAI 1/								
Leb. Bor.-Haifa	Haifa	3,960	Good	160	3	2,023	1	5,108
Haifa-Tel Aviv	Shemer	5,250	Poor	498				
	Yehuda	4,000	Unk	Unk				
	Rishpon	6,000	Unk	Unk				

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Table F-4 (cont'd)

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES			
					CTOL		HELO	
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA ($1000ft^2$)	NUMBER OF AIRFIELDS	PARKING AREA ($1000ft^2$)	NUMBER OF AIRFIELDS	PARKING AREA ($1000ft^2$)
ISRAEL/SINAI (cont'd)								
	Herzliya	2,400	Good	237				
	Tel Aviv	4,000	Unk	Unk	0		—	
				CTOL	3	2,023	HELO 0	4,533
					3	2,023	2	5,268
Tel Aviv-Ashdod		NONE			3	2,023	1	5,268
Gaza Strip	Gaza	3,000	Temp	Unk	3	2,023	2	5,268
Al Arish (Sinai)	Al Arish	8,260	Good	285	2	1,738		
PERSIAN GULF 1/								
KUWAIT								
Kuwait City	Kuwait Intl	11,152	Good	1,337	2	686		
	Nigra	5,000	Unk	Unk	—	—	1	5,268
				CTOL	2	686	HELO 1	5,268

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Table F-4 (cont'd)

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES			
					CTOL		HELO	
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA ($1000ft^2$)	NUMBER OF AIRFIELDS	PARKING AREA ($1000ft^2$)	NUMBER OF AIRFIELDS	PARKING AREA ($1000ft^2$)
PERSIAN GULF(cont'd)								
KUWAIT								
Kuwait-SE	Ahmadi	6,800	Fair	32			0	2,602
	Dabuiyah	5,000	Unk	Unk			0	2,634
					CTOL 3	2,023	HELO 0	5,236
NEUTRAL ZONE								
North	Khafji	3,300	Fair	16	3	2,023	1	5,252
South	NONE				3	2,023	2	5,268
SAUDI ARABIA								
Mishab-Safaniyah	Mishab	4,500	Fair	90			0	2,544
	Safaniyah	5,900	Fair	45			0	2,585
					CTOL 3	2,023	HELO 0	5,129
Tanajib-Dawhat	NONE				3	2,023	2	5,268
Dawhat-Al Bidah	NONE				3	2,023	2	5,268
Barbakh-Al Bahri	NONE				3	2,023	2	5,268

Table F-4 (cont'd)

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES				
					CTOL		HELO		
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)
SAUDI ARABIA (cont'd)								
Al Bahri-Tannura	Tanura-N	3,200	Fair	Gen Fld			0	2,634
	Tanura Ref	2,700	Fair	Gen Fld	—	—	0	2,634
				CTOL	3	2,023	HELO 0	5,268
... Khubal-Burikat	Dharan Intl	10,000	Good	1,912			0	722
	Bahrain*	13,000	Good	1,772			0	862
	Awali*	8,040	Good	72	0	602		
	Doha Intl*	15,000	Good	753	0	(+79)		
	Doha*	8,140	Good	749	0	(+75)		
	Dukhan*	6,000	Unk	Unk	—	—	—	—
				CTOL	0	448	HELO 0	1,584

* Offshore

Table F-4 (cont'd)

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES			
					CTOL		HELO	
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)
NORTH KOREA (East Coast) 1/								
Chongjin	Chongjin	3,900	Unk	Unk	3	2,023	1	5,268
Hoemun-Ni	Hoemun-Ni	8,200	Good	582	2	1,441	2	5,268
Kimchaek	NONE				3	2,023	2	5,268
Chaho-Sinchang	NONE				3	2,023	2	5,268
Hongwon	NONE				3	2,023	2	5,268
Hamhung	Sondong-Ni	8,200	Good	324	2	1,699	2	5,268
Wonsan	Wonsan	7,600	Good	288	2	1,735		
	Okpyong Hwy Strip	6,800	Fair	Gen Fld			0	2,634
	Wonsan Hwy Strip	5,000	Fair	Gen Fld			0	2,634
					—	———	—	———
				CTOL	2	1,735	HELO 0	5,268

Table F-4 (cont'd)

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES			
					CTOL		HELO	
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA ($1000ft^2$)	NUMBER OF AIRFIELDS	PARKING AREA ($1000ft^2$)	NUMBER OF AIRFIELDS	PARKING AREA ($1000ft^2$)
NORTH KOREA (West Coast) 1/								
Changsan-Got NW	NONE				3	2,023	2	5,268
Changsan-Got SW	NONE				3	2,023	2	5,268
Changsan-Got S	NONE				3	2,023	2	5,268

Maximum potential deficiencies in North Korea, based on amphibious assault commitment requirements (MCROP) of two MAFs are: six MAG CTOL airfields with 4,045,824 sq. ft. total parking area and four MAG helo airfields with 10,536,192 sq. ft. total parking area.

SOUTH KOREA (East Coast) 1/								
Kansong	R 413	2,600	Fair	60	3	2,023	1	5,208
Yangyeng	R 407	3,600	Good	12	3	2,023	1	5,256
Kangnung	Kangnung	8,610	Good	153	2	1,870	2	5,268
Ulchin	NONE				3	2,023	2	5,268
Pohang-Dong	Pohang	6,500	Fair	818	3	2,023	1	4,450
Pusan-East	Pusan Intl	6,600	Good	488	2	1,535	2	5,268

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Table F-4 (cont'd)

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES			
					CTOL		HELO	
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)
SOUTH KOREA (West Coast) 1/								
Popsonggpo-NNW	NONE				3	2,023	2	5,268
Tongbackchong	Kunsan AB	9,000	Good	1,180	2	843	2	5,268
Taean-West	NONE				3	2,023	2	5,268
Inchon	Kimpo Intl	10,500	Good	1,594	2	429	2	5,268
Maximum potential deficiencies in South Korea, based on amphibious assault requirements (MMROP) of two MAFs are: six MAG CTOL airfields with 4,045,824 sq. ft. total parking area and four MAG helo airfields with 10,536,192 sq. ft. total parking area.								
VENEZUELA (Northwest Coast)								
Puerto Gutierrez	NONE				1	669	1	2,331
Zazarida	NONE				1	669	1	2,331
Puerto Cumarebo	NONE				1	669	1	2,331
Punta Zamuro	NONE				1	669	1	2,331
San Juan de Los Cayos	Same	3,500	Fair	Gen Fld	1	669	0	2,331

Table F-4 (cont'd)

(S/NFD) POTENTIAL DEFICIENCIES OF AIRFIELDS AVAILABLE IN BEACHHEADS FOR SUPPORT OF MAGTF AVIATION ELEMENTS (S/NFD)

CONTINGENCY AREA	AIRFIELDS AVAILABLE				POTENTIAL AIRFIELD DEFICIENCIES			
					CTOL		HELO	
LANDING BEACH	NAME	RUNWAY LENGTH(ft)	CONDITION	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)	NUMBER OF AIRFIELDS	PARKING AREA (1000ft^2)
VENEZUELA (Northwest Coast) (cont'd)								
Boca de Aroa	Venepal	2,475	Good	24	1	669	0	2,307
Puerto Cabello	Puerto Cabello	3,800	Good	Unk	1	669	0	2,331

Maximum potential deficiencies in Venezuela are based on requirements of one MAB: one MAG CTOL airfield with 669,410 sq. ft. total parking area and one MAG helo airfield with 2,330,568 sq. ft. total parking area.

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