

Part II

Equipment Capabilities

2001. Ground Weapons

a. Vehicle-Mounted Weapon Systems

System	Weapon	Cruising Range/ Duration Time/ Max Eff Range	Basic Load/ Fuel Capacity/ Number of PAX	Vehicle Speed/ Rate of Fire	Combat Weight	No. in Division
M1A1		289 miles	505 gal	42 mph hwy/30 off road	67 STONS	58
	120-mm	2,500 meters	40			
	.50 cal	1,500 meters	1,000			
	7.62 COAX	900 meters	10,000			
	Loader 7.62	900 meters	14,000			
	Smoke GL	30 meters	24			
LAV		410 miles	71 gal/6 PAX	62 mph	14.2 STONS	130
(AT)	TOW	3,750 meters	16			
	7.62-mm	900 meters	1,000			
	Smoke	30 meters	16			
(25-mm)	25-mm	1,700 meters	600			
	7.62-mm	900 meters	1,200			
	Smoke	30 meters	16			
(M)	81-mm	5,000 meters	99			
	7.62-mm	900 meters	1,000			
AAV		200 miles	171 gal/22 PAX			
	40-mm Mk-19	800m (point) 1,250m (area)				
	.50 cal	1,500 meters				
AVLB		290 miles	375 gal/60 ft span	30 mph hwy/10 off road	56.5 STONS	4
M9 ACE		230 miles	134 gal	30 mph/3 over water	55,000 lbs (w/ ballast) 37,000 lbs (w/o ballast)	
Mk154	Lane size =	100 m length	X 16 m width	Mounted on AAV		
Mk155	Lane size =	100 m length	X 16 m width	Towed by AAV		
M2 Bradley Fighting Vehicle		300 miles	175 gal /3+ 6	42 mph hwy/30 off road	25.3 STONS	
	TOW	3,750 meters	7			
	25-mm APDS	1,700 meters	255			
	HEI-T	3,000 meters	675			
	7.62 COAX	900 meters	2,340			
	Smoke GL	30 meters	16			
	Thermal	2,000 meters				
M3 Cavalry Fighting Vehicle		300 miles	175 gal/2+3	42 mph hwy/30 offroad	24.7 STONS	
	TOW	3,750 meters	12			
	25-mm APDS	1,700 meters	425			
	HEI-T	3,000 meters	1,280			
	Smoke GL	30 meters	16			
	Thermal	2,000 meters				

Table 2-1. Vehicle-mounted weapon systems.

b. Individual and Crew-Served Weapons

Weapon	Range	Rate of Fire per min	Remarks	No. in Division
60-mm	3,490 meters	20 sustain/30 max		81
81-mm	5,700 meters	16 sustain/33 max		72
M198 (155-mm)	22,400 meters	2 sustain/4 max		72
TOW	3,750 meters	3	Thermal sight	186
Javelin	2,000 meters	1	CLU has day/night capability	
M47 Dragon	1,000 meters	1	Day and night sights	108
M136 AT-4	300 moving/600 stationary	1		
M72A2 LAW	125 moving/200 stationary	1		
M249 SAW	Max eff 600 m	750 normal/1,000 max		
M60 MG	Max eff 1,100 m	100 normal/200 rapid		
M203	350 meters			
9-mm Pistol	50 meters			
40-mm Mk-19	2,200 m (max)/1,600 (eff)	40 sustained/60 rapid		
M270 MLRS	M26 rocket (10-32 km) M26A1 ER rocket (13-45 km) M26A2 ER rocket (13-45 km) TACMS BLK I (25-165 km) TACMS BLK IA (70-300 km) TACMS BLK II (35-140 km) TACMS BLK IIA (100-300 km)	1 launcher=155mm bn 4+ or 88 rounds 12 rockets in < 60 sec 2 missiles in < 20 sec Average 6 min to reload plus drive time to next firing position	644 M77 DPICM 518 M85 submunitions 644 M77 DPICM 900 submunitions 300 submunitions 6 BAT munitions 13 BAT munitions	0 (Support from Army)
XM142 HIMARS	This is the system which will be procured by the Marine Corps.			

Table 2-2. Individual and crew-served weapons.

c. Vehicle Summary

Vehicle Type	Fuel Capacity	Range	Mileage	Combat Weight	Payload
HMMWV	25 gal	300 miles	12 mpg	5,200 lbs	2,374 lbs
5-Ton	82 gal	300 miles	4 mpg	18,726 lbs	9,998 lbs onroad/5,102 lbs offroad
LVS	165 gal	300 miles	2 mpg	47,990 lbs	40,000 lbs onroad/20,000 lbs offroad

Table 2-3. Vehicle summary.

Fuel/Sixcon planning factors notes:

- Fuel capacity for a sixcon is 900 gallons.
- Diesel fuel weighs approx 7 lbs per gallon.
- An empty sixcon weighs 2,630 lbs.
- A full sixcon weighs 8,930 lbs.
- A fuel pump weighs 2,300 lbs.
- The max cross-country load for a 5-ton is 10,000 lbs.
- A regular 5-ton can hold 1 sixcon.
- An ISOBED 5-ton can hold 2 sixcons. An ISOBED 5-ton with 2 sixcons can only hold 677 gallons total due to load limits of a 5-ton.

- An ISOBED 5-ton can hold 1 sixcon and 1 fuel pump. An ISOBED 5-ton with 1 sixcon and 1 fuel pump can only hold 724 gallons due to the load limits of a 5-ton.
- A 5-ton with 1 sixcon can hold 900 gallons of fuel.

2002. Fixed-Wing Aircraft

A/C Type	Mission	Cruise Speed	Weapons Capabilities	Fuel End (Hours)	Combat Radius	Troops or Payload (lbs)	Remarks
AV-8B	OAS	320 KIAS	25-mm gun 2.75" rockets 5.0" rockets Mk 81/82/83 Rockeye, Napalm FAE, GATOR Laser Maverick GBUs Sidarm Sidewinder	1 + 00	100 nm with 20 minutes of loiter time	Typical mix (CAS): • 4 x Mk 82 • 25-mm gun (Load varies significantly with ordnance load and mission profile. For specifics, refer to NWP 3-22.5, AV-8B Operations.)	Models include Day Attack (DMI), Night Attack (NVD/FLIR) AV-8B II + Radar
F/A-18 A/C/D	OAS AAW	350 KIAS	20-mm gun 2.75" rockets 5.0" rockets Mk 81/82/83/84 Rockeye, APAM Walleye, HARM GBUs Sparrow Sidewinder Laser Maverick IR Maverick ATARS (D only)	1 + 30	200 nm with 30 minutes of loiter time	Typical mix (CAS): • 2 x Sidewinder • 1 x Sparrow or AMRAAM • 4 x Mk 83 • 20-mm gun	NVD/FLIR TAC(A)/FAC(A) Capable for F/A-18D
EA-6B	EW	300 KIAS	ALQ-99 tactical jamming pods HARM	1 + 45	225 nm	Typical mix: • 4 jamming pods	
KC-130 F/R/T	Assault Support (AR)	270 KIAS	N/A	13 + 00 (DASC[A] configured 8-10 hours on station)	1755 nm	92 pax or 76 troops (cargo with no pax, 6 pallets)	Radio relay, battlefield illumination
MV-22	Assault Support	230 KIAS	N/A	3 + 00	270 nm	24 pax / 8,000 lbs	Can lift HMMWV with reduced fuel load
Pioneer (UAV)	RECCE	65 KIAS	N/A	5 + 00	110 nm	EO / IR identification pods	

Note 1: KIAS = knots indicated airspeed

Note 2: Fuel endurance in "hours + minutes"

Note 3: Combat troop payload based on 250 lbs per Marine

Note 4: Combat troops and payload vary with density altitude. Payloads based on standard day at sea level.

Note 5: All information contained in MCWP 3-24, Assault Support.

Table 2-4. General fixed-wing aircraft capabilities.

Mission Profiles		DASC(A) capable, radio relay, battlefield illumination, air delivery, air land delivery, aerial refueling, rapid ground refueling				
Air Delivery of Cargo and Personnel		Container delivery system	Up to 16 bundles (32,274 lbs)			
		Military freefall	64 jumpers			
		Heavy equipment	42,000 lbs			
		Personnel staticline	64 jumpers			
Short Unimproved Airfield Operations		Size and strength of runway are performance/weight dependent. Standard is 3,500 ft by 60 ft				
Rapid Ground Refueling Flow Rates (lbs per min)		Model	Point	IFR drogue	SPR panel	Pod
		AH-1W	1	59	34	49
			2	54	29	44
		CH-46	1	79	44	59
			2	69	35	49
	CH-53	1	66	40	56	
		2	56	31	46	
Air Land Delivery of Cargo and Personnel		Passengers		Pallets		Troops
		0		6		0
		92		1		76
		72		2		44
		52		3		33
		41		4		32
		24		5		16
		70 litters with 6 attendants				
		74 litters with 2 attendants				
		Tanker Configured Airframe		Passengers		Pallets
		40		1		
		24		2		
Aerial Refueling Transfer Rates (JP-5 at standard daytime temperature in lbs per min)		1 Receiver			2 Receivers	
		F cargo			980	
		R or T cargo			1,020	
		F tanker			2,040	
		R or T tanker			2,040	

Table 2-5. KC-130 (Models F/R/T) capabilities.

2003. Rotary-Wing Aircraft

A/C Type	Mission	Cruise Speed	Weapons Capabilities	Fuel End (Hours)	Combat Radius	Troops or Payload (lbs)	Remarks
CH-46E	Assault Support (Medium Lift)	120 KIAS	2 x 50 caliber machine guns	2 + 30 2 + 00 1 + 30	120 nm 90 nm 60 nm	10 pax (2500 lbs) 12 pax (3000 lbs) 15 pax (3750 lbs)	Premier fastrope platform
CH-53D	Assault Support (Heavy Lift)	120 KIAS	2 x 50 caliber machine guns	3 + 00	150 nm	24 pax (6000 lbs)	Can external lift HMMWV with reduced fuel load
CH-53E	Assault Support (Heavy Lift)	130 KIAS	2 x 50 caliber machine guns	4 + 00	200 nm	24 pax (15000 lbs)	Can external lift LAV with reduced fuel load
UH-1N	Assault Support C2 CAS	110 KIAS	2.75" rockets GAU 16/17 gun(s)	3 + 10 (aux) 2 + 20 (aux) 1 + 30	150 nm 100 nm 50 nm	2 pax (500 lbs) 3 pax (750 lbs) 4 pax (1000 lbs)	ASC-26 available, NTIS
AH-1W	OAS	130 KIAS	TOW, Hellfire Sidewinder Sidearm 20-mm gun 2.75" rockets 5.0" rockets	2 + 00	90 nm with 30 minutes loiter time	Typical mix: <ul style="list-style-type: none"> • 4 x Hellfire • 4 x TOW • 8 x 5.0" rockets • 20-mm gun 	NTS (FLIR) Laser designation/ranging systems

Note 1: KIAS = knots indicated airspeed
 Note 2: Fuel endurance in "hours + minutes"
 Note 3: Combat troop payload based on 250 lbs per Marine
 Note 4: Combat troops and payload vary with density altitude. Payloads based on standard day at sea level
 Note 5: All information contained in MCWP 3-24, *Assault Support*.

Table 2-6. Rotary-wing aircraft capabilities.

2004. Unmanned Aerial Vehicle (Pioneer)

Dimensions	Wing Span: 16.9 ft Length: 14.0 ft Height: 3.3 ft
Weight Limitations	UAV (empty): 276 lbs Payload (max): 75 lbs Fuel (full): 60 lbs Max Takeoff: 429 lbs
Performance	Service Ceiling: 12,000 ft Maximum Altitude: 15,000 ft Max Endurance: 4 hrs Max Range: 185 km Engine: 26 Hpwr Fuel: 100 LL Aviation Gas Cruise Speed: 65 kts Max Speed: 110 kts
Launch and Recovery	Rolling Takeoff: Approx 1000 meters Pneumatic Launch: 21 meters Rocket Assisted (RATO): 0 meters Arrested Recovery: 130 meters Short Field: 70 meters Shipboard Net Recovery: 0 meters
Concept of Employment	The VMU Squadron can support any sized MAGTF. Normal employment would be as an integral unit of the ACE in support of MAGTF operations. The squadron is capable of limited independent operations.
Operations and Employment Considerations	Airspace deconfliction with other aircraft. Coordination with Air Officer (MAGTF, ACE, MAW, AOC ...)
Operations and Employment Advantages	Small size Low radar cross section, Low IR signature Long range Wide temperature range (32 – 125 degrees F)
Operations and Employment Disadvantages	Weather Rain (cannot operate in rain) Icing (no onboard deicing) Wind Restrictions Head winds 25. kts w/gusts to 30 kts Cross winds 15 kts w/gusts to 20 kts Tail winds 5 kts (RATO/Pneumatic) Airborne winds aloft 65 kts max
Operations and Employment Vulnerabilities	AAA Small arms fire (at low flying altitudes) Electronic Warfare (C Band emissions)

Table 2-7. Unmanned aerial vehicle (Pioneer) capabilities.

In late 1999, the RQ-2B Pioneer will arrive in fleet squadrons. The aircraft combines many technology upgrades that have been recently developed. Most notably, the RQ-2B contains a completely new integrated digital flight computer and sensor suite called MIAG (modular integrated avionics group). The new Pioneer will also incorporate the common automatic landing system (CARS) and a new dual sensor optical payload, the Versatron day TV color/forward-looking infrared payload. As well, a new digital autopilot will be on board.

There are two active UAVs employed within the joint environment:

- RQ-2A/B Pioneer UAV. Operates 15,000 feet and below.
- RQ-1A Predator UAV. Operates 15,000 feet and above.

The Hunter UAV operated by the U.S. Army was brought out of retirement for the Kosovo crisis.

2005. Marine Air Command and Control System Radars

	3D/2D	Max Range	Max Altitude	Frequency	Ballistic Trajectories	MACCS Agency	Qty per MEF
AN/TPS-59	3D	400 nm	500K ft	D-Band	Yes	TAOC/EWC	2 (1 in III MEF)
AN/TPS-63	2D	160 nm	40K ft	D-Band	No	TAOC/EWC	1 (2 in III MEF)
CWAR	2D	40 nm	10K ft	X-Band	No	TAOC	4 (3 in III MEF)
AN/TPS-73	2D	60 nm	60K ft	E-Band	No	MATCD	4 (2 in III MEF)
AN/TPN-22	2D	10 nm	10K ft	I-Band	No	MATCD	4 (2 in III MEF)
AN/UPS-3 (TDAR)	2D	12 nm	10K ft	D-Band	No	LAAD Bn	15 (10 in III MEF)

Table 2-8. Marine air command and control radar systems.

2006. Marine Air Defense

	Platform	Employment	Air-Air/ Surface-to-Air	Data Link	Radar	Communications/ Security
WEAPONS	F/A-18C/D Hornet	AAW-OAAW FAC(A) TAC(A) SEAD (w/HARM) OAS-CAS/DAS Interdiction Night Attack Escort	AIM-120 AIM-7 AIM-9 20mm gun	TADIL-C	APG-73 AN/AAS-38 FLIR Navigation FLIR	1 AN/ARC-210 UHF, VHF SINCGARS Havequick KY-67
	AV-8B Harrier II+	OAAW SEAD OAS-CAS/DAS Interdiction Night Attack AS Escort	AIM-9 20mm gun	None	APG-63 FLIR Navigation FLIR	2 AN/ARC-182 UHF, VHF KY-58
	Stinger MANPAD Avenger LAV (AD)	Low altitude air defense	FIM-92D Missile	Stinger GBDL	With RTU can use all Marine sensors and specific sister service sensors	MANPAD: • SINCGARS Avenger: • 2 SINCGARS LAV (AD): • HF & SINCGARS

	Platform	Mission	Type/Data Link	Band	Range	Altitude
SENSORS	AN/TPS-59(V)3	Long-range surveillance (ABT/TBM) GCI	3D PPDL to ADCP	L	400nm	500k
	AN/TPS-63	Medium-range (gap-filler) surveillance (ABT) GCI	2D Remote Radar (VHF)	L	160nm	60k
	AN/MPQ-62 (CWAR)	Close-in, low altitude EW and cueing (ABT) GCI	2D GBDL	J	30nm	30k
	AN/UPS-3 (TDAR)	Short-range, low altitude EW and cueing	2D GBDL	L	10nm	10k
	AN/TPS-73	Air traffic control surveillance radar	2D TADIL-B	E	60nm primary 120nm secondary	60k
	Agency	Mission	C2 System	Data Link	Comm/Sec	Reference
Command And Control	TACC	Senior agency of MACCS ACE Cmdr's CP	MSCS CTAPS	TADIL A,B NATO Link 1 CTT	HF, UHF, VHF, Satcomm, Havequick, YES	MCWP 3-25.4
	TAOC	Control intercept of hostile aircraft and missiles Surveillance & ID of a/c within assigned sector Tactical ATC	AN/TYQ-23	TADIL A, B, J ATDL-1 NATO Link 1 CTT	HF, UHF, VHF, Havequick, YES	MCWP 3-25.7
	ADCP	Provide EW cueing of TBMs from AN/TPS-59 via TADIL J	AN/TSQ-124	TADIL J PPDL GBDL	HF, UHF, VHF, YES	
	MATCD	Air Traffic Control BDZ	AN/TSQ-131 (CSS)	TADIL-B	HF, UHF, VHF, YES	MCWP 3-25.8

Table 2-9. Marine air defense capabilities.

2007. Communications Equipment

a. Ground Single Channel Radio

Frequency Band	MAGTF SCR Equipment Used	Operating Frequency Range	Typical Application
HF	AN/PRC104 AN/GRC-193 AN/MRC-138	2- 29.999 MHz	Radio line of sight and beyond/ long range
VHF	AN/PRC-68 AN/PRC-119 AN/MRC-145	30- 88 MHz	Radio line of sight and relay/ retransmission
UHF	AN/PRC-113 AN/VRC-83 AN/GRC-171	225- 400 MHz	Critical line of sight (ground to air)
	AN/PSC-3 AN/PSC-5		SATCOM footprint

Table 2-10. Ground single channel radio capabilities.

b. AN/MRC-142 Multi-Channel Radio

Frequency range	1,350- 1,850 MHz
Bandwidth	100 (125 optional) kHz
Channel rate	144, 288, and 576 kbps
Output power	Low: 300mW (25dBm) High: 3 W (35 dbm)
Frequency Stability	10 ppm
Orderwire channel	Analog: 300- 3,400 Hz Digital: 16 kbps

Table 2-11. AN/MRC-142 multi-channel radio.

c. AN/TRC-170 Multi-Channel Radio

Frequency Range	4.4- 5.0 GHz
Bandwidth	3.5 or 7.0 MHz
Transmitter power	1 kW
Diversity	Dual
Data Rates	Up to 4,608 kbps
Channel capacity (at 32kbps)	Up to 144 (includes overhead)

Table 2-12. AN/TRC-170 multi-channel radio.

d. SHF SATCOM Terminal System

Transmit frequency range	7900- 8400 MHz
Transmit bandwidth	40 MHz
Power Output	500 W (nominal)
Receive frequency range	7,225- 7,725 MHz
Receive bandwidth	500 MHz

Table 2-13. General SATCOM terminal capabilities.

	Balanced NRZ (kbps)	Conditioned Diphas (kbps)	Unbalanced NRZ (kbps)	Low Rate Multiplexer	TRI-TAC Group (Digital Trunk Group)
AN/TSC-85	8-1152	72-1152	288 576 1152	8	3
AN/TSC-93	8-1152	8-1152	288 576 1152	3	1

Note: There are 12 channels per low rate multiplexer.

Table 2-14. SHF SATCOM terminal system.

e. Notional Air-Deployable Data Communications Package

Nomenclature	Quantity
Heavy HMMWV with shelter	2
Server Suite	4
Laptop (router)	2
Desktop suite (net management)	3
CISCO 4000 router	3
LAN repeater	3
Uninterruptible power supply	7
Channel service unit/data service unit modems	4
Asynchronous modems	2
KG-84C	8
KYK-13/digital transfer device	2
KOI-18	2

Note: Provides 35-50 users, NIPRNET, SIPRNET, and JWICS access.

Table 2-15. Notional air-deployable data communications package.

f. MEF Command Element Data Communications Package

Nomenclature	Quantity
5- ton truck with shelter	1
Server Suite	8
Laptop (router)	2
Desktop suite (net management)	5
CISCO 7000 router	3
Channel service unit/data service unit modems	4
Asynchronous modems	2
LAN repeater	8
Uninterruptible power source	11
KG-84C	20
KYK-13/digital transfer device	2
KOI-18	2

Note: Provides 50-200 users, NIPRNET, SIPRNET, and JWICS access.

Table 2-16. MEF command element data communications package.

g. MAGTF Telephone/Message Switches

Switch	Location Employed	Interface Devices	Terminal Devices
Telephone Switch	MEF	TCIM IP Routers	STU-III DSVT DNVT
AN/TTC-42			
AN/SB-3865	MEF/MSC/ Regt/Group/Arty Bn		
Message Switch	MEF/MARFOR/MSC		Message servers
AN/MSC-63A AN/TYC-39 (via MOA with USAF)			

Table 2-17. MAGTF telephone/message switches.

h. Joint Task Force Enabler Equipment Package

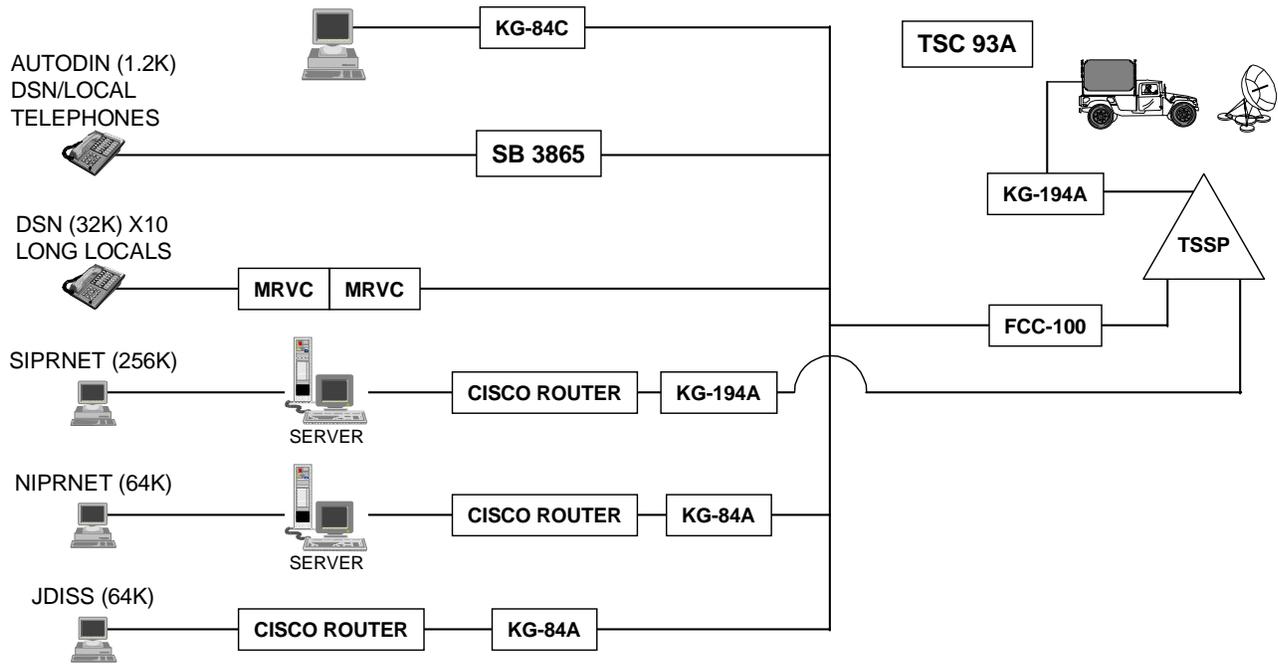


Figure 2-1. Joint task force enabler equipment package.

i. AN/PSC-5

The AN/PCS-5, SPITFIRE, (see figure 2-2) complies with the Joint Chiefs of Staff mandate for all users to be demand assigned multiple access (DAMA) and advanced narrow band digital voice terminal (ANDVT) capable. The radio has the following capabilities—



Figure 2-2. AN/PSC-5 radio.

- Manpack radio.
- Embedded narrow/wide band secure voice and data.
- Embedded 5/25Khz DAMA.
- Non-DAMA backward compatibility.
- SATCOM/LOS communications.
- 30-400Mhz range.

j. LST-5C Lightweight Satellite Transceiver

An FM/AM, UHF transceiver used for half-duplex, line-of-sight or satellite communications suitable for man pack, vehicular or fixed-station applications. Using the built-in modem, the radio provides narrow-band (5KHz) at data rates of 1200 and 2400 bps.

Frequency Range	222 – 399.995 MHz		
Preset Channels	9		
Modulation	AM/FM BPSK/SBPSK		
Power Output	AM	Low	2 watts
		High	5 watts
	FM	Low	5 watts
		High	18 watts
SEL Power adjustable in 2 watt steps, 2 to 18 watts in FM			
Major Components	Remote Control Unit LSRU-100 Antenna (LOS) Antenna, any 50 ohm impedance antenna Handset H250 Battery Case PTL-200 Receiver-Transmitter Power supply Interconnect Cable KY-57		

Table 2-18. LST-5C lightweight satellite transceiver.

k. AN/TSC-96 Fleet Satellite Communication Control

Provides terminal and transmission equipment in two shelters for three UHF satellite communications channels. One channel is secure, half-duplex teletype for Naval Modular Automated Communications (NAVMACS). One channel is secure, half-duplex digitized voice. One channel may provide either for multiplexed fleet broadcast channels from a group of 15 or an additional secure voice channel.

Frequency Range	225 – 3975 MHz		
Modulation	AM/FM FSK/PSK/CW		
Data Rate	75 – 9600 bps (PSK)		
	Transmit	75 bps (FSK) TTY 2400 bps (CV3333)	
	Receive	1200 bps (4 channel)	
Type Trans	Data, Voice, TTY		
Power Output	AM	30 watts	
	FM, FSK, PSK	100 watts	
Power Requirement	208 Vac, 60 Hz, 3-phase or 115 Vac, 60 Hz, 1-phase		
Size and Weight		OL-188	OZ-46
	Weight	7,000 lbs	2,000 lbs
	Dimensions	147" x 87" x 83"	85" x 79" x 70"
	Volume	615 ft ³	273 ft ³
Major Components	Data Processing Group OL-188(V)/TSC-96(V) in S-280 shelter Radio Set Group OZ-46/TSC-96(V) in S-280 shelter		

Table 2-19. AN/TSC-96 fleet satellite communication control.

I. SINGARS Radios

- PRC-119A man pack replaces the AN/PRC-77.
- AN/VRC-88 short range vehicular mounted RT with dismount kit replaces AN/GRC-160.
- AN/VRC-92A is two long-range RTs in one mount. When mounted it becomes an AN/MRC-145 replacing the AN/MRC-110A.
- AN/VRC-89A and AN/VRC-91A are vehicle-mounted with one long-range and one short-range RT. AN/VRC-91A comes with a dismount kit.

Characteristics	SINGARS	AN/VRC-12
Frequency Range	30.000 – 87.975 MHz	30.00 – 79.95 MHz
Power Output	0.5 – 50 watts	0.5 – 35 watts
Channel Spacing	25 KHz	50 KHz
Number of Channels	2320 Frequencies	920 Frequencies
Tuning	8 SC and 6 FH	Manual tuning (442)
EP Capability	Frequency Hopping	None
Self Test	Yes	No
Crypto Device	Internal	External KY-57
Weight (man pack)	19.5 lbs	29 lbs with KY-57
Reliability	>3000 hours MTBF	>300 hours MTBF

Table 2-20. SINGARS and AN/VRC-12 comparison.

m. Trojan Special Purpose Integrated Remote Intelligence Terminal II

Trojan Special Purpose Integrated Remote Intelligence Terminal (SPIRIT) II provides dedicated communications for intelligence information products to MAGTF command elements. It is a mobile SHF satellite communication system that uses commercial or military satellites to receive, transmit, and process secure, voice, data, video-conferencing, and facsimile communications. It provides fourteen channels of digital voice or data (SCI or GENSER) with a maximum aggregate data rate of 1.544 Mbps. LAN communications are supported by two separate ethernet LANs (SCI and GENSER). Routers provide access to the SIPRNET, JWICS, National Security PLATFORM, and DSCS. These capabilities provide dedicated communications for coordinating intelligence operations and analysis. The system consists of two H-HMMWVs mounting standard integrated command post lightweight multipurpose shelters, tunnel mounted power generation units, and a towed 2.4 meter (C, Ku-band) or 6.1 meter (C, Ku, X-band) antenna.

Hardware	FORCE Sparc 10 Workstation VME 6U Chassis 2 GB removable hard disk drive CD ROM Cyberchron CPC-5000 Laptop Motorola Codex Modem KIV-7 COMSEC devices	KY-68 Mobile Subscriber Equipment LST-5 UHF SATCOM CISCO 4000 Router Mackay IMMARSAT-M Mobile Radio Telephone TSP-9100A TEMPEST Facsimile Global Positioning System Receiver 18,000 BTU Environmental Control Unit
Software	Joint Deployable Intelligence Support System (JDISS) software All Source Analysis System (ASAS) software UNIX System 5, X-Windows/Motif SQL Database Transmission Control Protocol/Internet Protocol (TCP/IP) suite Windows NT 3.51	
Communications	C, Ku, and X-band Commercial Satellite LST-5 or AN/PSC-5 UHF SATCOM Terminal INMARSAT-M Terminal Commander's Tactical Terminal- Receive Only	
Power	Primary – 10 kW Tunnel Mounted Generator (component) Alternate – any 3-phase 120/208 Vac 50/60 Hz source	

Table 2-21. Trojan Special Purpose Integrated Remote Intelligence Terminal II.

2008. Amphibious Ships

Classification	Ship	Homeport/ (Current Assignment)	Max Spd	Troop Transport	Cargo Space	Well Deck Capability	Aircraft Capability	Weapons	Water Prod
Amphibious Transport Dock Mission: Transport and land Marines, their equipment and supplies by embarked landing craft or amphibious vehicles augmented by helicopters in amphibious assault.	USS Austin (LPD-4)	Norfolk	21 kts	917 Marines	7,269 ft ² upper deck storage. Enough for 47 ¾-ton trucks.	394' x 50' Enough for 9 LCUs, or 2 LCACs, or 9 LCMs, of 20 LVTs.	Up to 6 CH-46s 6 Spots	4 3" 50 cal (2) CIWS	100K gal storage 60,000 gal per day
	USS Ogden (LPD-5)	San Diego (5 th Fleet)							
	USS Duluth (LPD-6)	San Diego							
	USS Cleveland (LPD-7)	San Diego							
	USS Dubuque (LPD-8)	San Diego							
	USS Denver (LPD-9)	San Diego							
	USS Juneau (LPD-10)	Sasebo (7 th Fleet)							
	USS Shreveport (LPD-12)	Norfolk							
	USS Nashville (LPD-13)	Norfolk							
	USS Trenton (LPD-14)	Norfolk							
	USS Ponce (LPD-15)	Norfolk (6 th Fleet)							
Dock Landing Ship Mission: Support United States Navy and Marine Corps amphibious operations including landings via Landing Craft Air Cushion (LCAC), conventional landing craft and helicopters, upon a hostile shore.	USS Anchorage (LSD-36)	San Diego	22 kts	400 Marines	Enough for 52 LVTP-7.	430' x 50' Enough for 3 LCACs, or 3 LCUs, or 9 LCMs, of 50 LVTs.	Helicopter platform only. 1 spot.	4 3" 50 cal 2 CIWS	
	USS Portland (LSD-37)	Little Creek							
	USS Mount Vernon (LSD-39)	San Diego (7 th Fleet)							
	USS Whidbey Island	Little Creek	20+ kts	504 Marines Can surge an additional 102 Marines	5,000 ft ² for Marine cargo. 12,500 ft ² for vehicles.	440' x 50' Enough for 4 LCACs, or 3 LCUs, or 21 LCMs, of 64 LVTs.	Any helicopter. 2 spots.	2 25mm machine guns 2 CIWS	
	USS Germantown (LSD-42)	Sasebo (7 th Fleet)							
	USS Ft McHenry (LSD-43)	Sasebo (7 th Fleet)							
	USS Gunston Hall (LSD-44)	Little Creek (6 th Fleet)							
	USS Comstock (LSD-45)	San Diego							
	USS Tortuga (LSD-46)	Little Creek							
	USS Rushmore (LSD-47)	San Diego (5 th Fleet)							
	USS Ashland (LSD-48)	Little Creek							
	USS Harper's Ferry (LSD-49)	San Diego	20+ kts	402 Marines Can surge an additional 102 Marines	5,000 ft ² for Marine cargo. 12,500 ft ² for vehicles.	440' x 50' Enough for 4 LCACs. [LSD-50's well deck is 180' x 50', enough for 2 LCACs.]	Any helicopter. 2 spots.	2 25mm machine guns 2 CIWS	
	USS Carter Hall (LSD-50)	Little Creek							
	USS Oak Hill (LSD-51)	Little Creek							
	USS Pearl Harbor (LSD-52)	San Diego							

Table 2-22. Amphibious ships.

Classification	Ship	Homeport/ (Current Assignment)	Max Spd	Troop Transport	Cargo Space	Well Deck Capability	Aircraft Capability	Weapons	Water Prod
Amphibious Assault Ship Mission: Primary landing ships for major portions of the assault echelons of a Marine Amphibious Force and Marine Amphibious Brigade. Secondary role, using AV-8B Harrier and anti-submarine helicopters, perform sea control and limited power projection missions.	USS Wasp (LHD-1)	Norfolk	22 kts	1,600 Marines Medical: 6 operating rooms; 17 intensive care units; 550 ward beds	101,000 ft ² with additional 20,000 ft ² for vehicles. Enough for 5 MiAis; 25 LAVs; 8 M198s; 68 trucks; 10 log vehicles.	267' x 50' Enough for 3 LCACs, or 12 LCMs.	42 CH-46s, 5 AV-8Bs. [Actual mix depends upon mission assigned] Can support any 9 helo spots.	2 NSSMS, 3 CIWS, 8 50 cal	
	USS Essex (LHD-2)	San Diego							
	USS Kearsarge (LHD-3)	Norfolk (6 th Fleet/26 MEU)							
	USS Boxer (LHD-4)	San Diego							
	USS Bataan (LHD-5)	Norfolk							
	USS Bonhomme Richard (LHD-6)	San Diego							
	USS Iwo Jima (LHD-7)	Norfolk							
	USS Tarawa (LHA-1)	San Diego	25 kts	1,900 Marines Medical: 4 operating rooms; 17 intensive care units; 300 ward beds	33,730 ft ² for vehicles. 116,900 ft ² for palette stores. Enough for 200 vehicles.	Enough for 1 LCACs, 7 LCU's; or 17 LCMs; or 45 LVT.	9 CH-53s, 12 CH-46s, 6 AV-8Bs. [Actual mix depends upon mission assigned] 9 helo spots.	2 NSSMS, 3 5" 54 cal, 1 CIWS, 6 20mm MK67 AA guns.	140K gal per day
	USS Saipan (LHA-2)	Norfolk							
	USS Belleau Wood (LHA-3)	Sasebo (7 th Fleet)							
	USS Nassau (LHA-4)	Norfolk							
USS Peleliu (LHA-5)	Norfolk (5 th Fleet/11 MEU)								
Tank Landing Ship Mission: Transport and land amphibious vehicles, tanks, combat vehicles, and equipment in amphibious assault.	USS Frederick (LST-1184)	Pearl Harbor (7 th Fleet)	20 kts	360 Marines	19,000 ft ²	N/A	Can handle all helos except CH-53s	4 3" 50 cal	
	USS LaMoure County (LST-1194)	Little Creek			Enough for 29 tanks 500 tons of vehicles.		1 spot. 1 CIWS		
Amphibious Command Ship Mission: To provide amphibious command and control in major amphibious operations.	USS Blue Ridge (LCC-19)	Yokosuka (7 th Fleet)	23 kts	700 Marines	N/A	N/A	1 SH-3G	2 CIWS	
	USS Mount Whitney (LCC-20)	Norfolk (6 th Fleet)					Can handle all helos except CH-53s 1 spot.		

2009. Landing Craft

Designation	Ship Class	Well Deck Capacity
LHD	Wasp	3 LCACs, 2 LCUs, 6 LCM-8s, or 12 LCM-6s
LHA	Tarawa	1 LCAC, 4 LCUs, 7 LCM-8s, or 17 LCM-6s
LPD-4	Austin	1 LCAC, 1 LCU, 4 LCM-8s, or 9 LCM-6s
LSD-36	Anchorage	3 LCACs, 3 LCUs, 9 LCM-8s, or 18 LCM-6s (with mezzanine deck in, capacity is reduced to 2 LCACs, 1 LCU, 6 LCM-8s, or 12 LCM-6s)
LSD-41	Whidbey Island	4 LCACs, 3 LCUs, 10 LCM-8s, or 10 LCM-6s
LSD-49	Harper's Ferry	2 LCACs, 1 LCU, 4 LCM-8s, or 9 LCM-6s

Note: Planning speed for amphibious task force is 12-13 knots.

Table 2-23. Amphibious ship well deck capabilities.

LCAC	<ul style="list-style-type: none"> • Cargo deck is 67' x 27'. • Can load 1 M1A1 tank and 2 HMMWVs, 4 LAVs, or equivalent trucks. • With personnel transport module can haul 120 pax. • Payload capacity is 60 tons. • Max speed is 40 kts (planning speed is 30 kts). • Offload time is ~15 minutes. • Reload time is ~ 45 minutes.
LCU-1646 Class	<ul style="list-style-type: none"> • Cargo deck is 12.5' x 25'. • Can load 2 M1A1 tank, or equivalent quantity of large vehicles, or 400 combat loaded troops. • Payload capacity is 180 tons. • Man speed is 12 kts. • Turnaround time (offload and reload) is roughly twice the time for an LCAC.
LCM-8 (steel hull)	<ul style="list-style-type: none"> • Cargo deck is 14' x 42'. • Can load 4 HMMWVs, or 3 HMMWVs and 1 LAVs, or 150 combat loaded troops. • Payload capacity is 60 tons. • Max speed is 9 kts.
LCM-8 (aluminum hull)	<ul style="list-style-type: none"> • Cargo deck is 17' x 42'. • Can load 1 M1A1, or equivalent quantity of large vehicles, or 200 combat loaded troops. • Payload capacity is 180 tons. • Max speed is 12 kts.
LCM-6	<ul style="list-style-type: none"> • Cargo deck is 37' x 11'. • Can load 1 HMMWV and 1 5-ton truck, or 2 HMMWVs, or 1 LAV, or 80 combat loaded troops. • Payload capacity is 34 tons. • Max speed is 10 kts.

Table 2-24. Landing craft capabilities.

Note: LCUs and LCMs require a beach gradient of 1:20 to 1:60. A steeper slope may cause broaching, while flatter slope may cause grounding out.

Range	45 NM	
Speed	25 KTS	
Availability LCACs per Day (from a total of 54)	Day One – 52 Day Two – 49 Day Three – 46 Day Four – 43 Day Five - 40	
Operating Time	16 hours per day per LCAC	
Time per Sortie	Vehicle Load – 6 hours, 8 min Cargo Load – 8 hours, 36 min	
Sorties per Day for Vehicles	2.6 sorties per LCAC per day Total = 104 LCAC sorties per day @ 40 LCACs per day	
Sorties per Day for Cargo	1.86 sorties per LCAC per day Total = 74 LCAC sorties per day @ 40 LCACs per day	
Personnel Capacity	24 Troops 180 w/PTM	
Short Tons per Sortie	25 STONS 50 pallets (500 lbs per pallet)	
Vehicles per Sortie	12 HMMWVs per sortie 4 LAVs per sortie 2 AAVs per sortie 1 M1A1 per sortie 4 M923 per sortie 2 M923 5-Ton Trucks, 2 M198 Howitzers, and 2 HMMWVs per sortie	
Time Details	Transit (45 NM @ 25 kts) x 2 = 216 min Well deck Operations: <ul style="list-style-type: none"> • 62 min for vehicles • 120 min for cargo Beach Operations <ul style="list-style-type: none"> • 30 min for vehicles • 120 min for cargo Friction = 60 min Total = 368 min (for vehicles) or 516 min (for cargo)	
Unit LCAC Sortie Requirements	Infantry Regiment	269 HMMWVs = 23 sorties 10 5-Ton Trucks = 3 sorties
	Tank Battalion	58 M1A1 = 58 sorties 95 HMMWVs = 8 sorties 23 5-Tons = 6 sorties 8 Fuel Trucks = 4 sorties
	LAV Battalion	110 LAVs = 28 sorties 29 HMMWVs = 3 sorties 23 5-Tons = 6 sorties 8 Fuel Trucks = 4 sorties

Table 2-25. Landing craft air cushion capabilities.

Ship Type	Primary Roll	Air Search Radar Systems	Weapon Systems	ID Capabilities	Data Link Capabilities	Communications Capabilities	Aviation Capabilities
Aircraft Carrier (CV/CVN)	Fixed-wing aircraft operations	AN/SPS-48E (3D) AN/SPS-49 (2D)	NSSMS CIWS	Rotating IFF ACDS Block 0/1 (CV Auto ID) SEC CEC	TADIL-A TADIL-J TADIL-C ADSI	HF EHF UHF SATCOM SHF	No. and type fighter squadrons. (4) SH60F: Plane guard, dipping sonar, SAR
Guided Missile Cruiser (CG)	Battle group air defense	Primary: SPY-1B (3D) Secondary: AN/SPS-49 (2D)	TLAM SM2 Block 2/3 VL ASROC HARPOON 2 5" 54 CIWS SLQ 32 V3	Mast-mounted phased array IFF (Backup IFF mounted on SPS-49.) CEC	TADIL-A TADIL-J TADIL-C DNMFL HAWK Link	HF EHF UHF SATCOM	2 SH60B: OTH targeting, SAR
Guided Missile Destroyer (DDG)	Air defense	SPY-1D (3D)	TLAM SM2 Block 2/3 VL ASROC HARPOON 2 5" 54 CIWS SLQ 32 V3	Mast-mounted phased array IFF (Backup IFF mounted on SPS-49.)	TADIL-A TADIL-J TADIL-C DNMFL HAWK Link	HF EHF UHF SATCOM	Flight deck support landing and refueling helicopters.
Guided Missile Frigate (FFG)	Surveillance	AN/SPS-49 (2D) CAS Search	SM1 Block 6B HARPOON 3" 76 SLQ 32 V3	Rotating IFF mounted on SPS-49	TADIL-A HAWK Link	HF UHF SATCOM	2 SH60B: OTH Targeting, SAR
Spruance Destroyer (DD)	Anti-submarine Anti-surface	AN/SPS-40 (2D)	TLAM SLQ 32 V3	Rotating IFF	TADIL-A HAWK Link	HF UHF SATCOM	
Amphibious Helicopter Assault Ship (LHA)	Sea/air landing force assault	SPS-52 SPS-40B	CIWS	Rotating IFF NTDS	TADIL-A TADIL-J TADIL-C	HF EHF UHF SHF SATCOM	Helicopters Harriers
Amphibious Helicopter Dock Ship (LHD)	Sea/air landing force assault	SPS-48C SPS-52 SPS-49	NSSMS CIWS	Rotating IFF NTDS CEC	TADIL-A TADIL-J TADIL-C	HF EHF UHF SHF SATCOM	Helicopters Harriers
Amphibious Command Ship (LCC)	Command and control			Rotating IFF NTDS	TADIL-A TADIL-J TADIL-C	HF EHF UHF SHF SATCOM	

Table 2-26. Navy surface ships.

2011. Navy Air Defense

a. Navy Platform Air Defense

Platform	Strengths	Weaknesses
CG-47/DDG-51 Class	<ul style="list-style-type: none"> • ANSPY-1 multifunction, phased array, fire control quality radar. • Very rapid transition from SPY-1 silent to full radiate and full situational awareness. • Fast reaction, fully/semiautomatic combat systems. Initial detection to first missile movement in less than 10 sec. • Salvo rate of less than 2 sec per launcher (CG-52 and above with MK 41 VLS) • Mix of multiple SMs. • Max field of fire and min blockage zones • Must illuminate target only for a short duration prior to intercept. • AN/SPY-1 radar variable sensitivity feature allowing radar sensitivity to be tailored to threat RCS, environment, and tactical situation. • Weapons & ID doctrine capable of automatic and semiautomatic response/action. • Doctrine software assists w/ ID 	<ul style="list-style-type: none"> • The system is designed for blue water and littoral operations however AN/SPY-1 configuration must be modified to look above the terrain to avoid causing excessive false targets from land clutter. These configuration changes may increase ship susceptibility to low and fast targets. • Once a target is engaged and the initial salvo fired, WCS will not allow the target to be reengaged (second salvo) until a kill evaluation has been completed. • AN/SPY-1 antenna height is lower than the AN/SPS-49 radar system resulting in reduced radar horizon. • DDG-51 Class are not equipped with a AN/SPS-49 radar (no secondary air search radar) • Must hold an AN/SPY-1 track. Cannot engage on a remote or AN/SPS-49 track unless equipped with CEC.
FFG-7 Class	<ul style="list-style-type: none"> • Good capability against (2 or less) medium and high altitude ASMs. • If equipped with the SM-1 BLK VIB and Mod 6 FCS good capability against low altitude ASMs. • Improved 2D air search radar. • High SM-1 salvo rate against a single target. 	<ul style="list-style-type: none"> • Cycle time for SM-1 is relatively long. • Capability against low ASMs for Mod 2/SM-1 BLK VIA ships is poor. • Illuminator blockage zones are excessive. • Must illuminate target continuously during missile flight. • Long range air search radar is 2D. • Track capacity is limited.
DD-963 Class	<ul style="list-style-type: none"> • Very capable self defense system. • Adequate low flyer detection source Mk 23 TAS/NSSMS FCR in sector search. • Moderate field-of-fire blockage zones for NSSMS off port/starboard bow. • May be stationed in ID zone to supplement shotgun and provide additional air defense surveillance. 	<ul style="list-style-type: none"> • Missile range is short. • Long range air search radar is 2D. • Must be within 1.5nm of MEU and on threat axis to provide realistic area defense.
CV/CVN	<ul style="list-style-type: none"> • Very capable self defense system. • Adequate low-flyer detection source Mk 23 TAS/NSSMS FCR in sector search. • Good long range 3D air search radar. • Good overland/near land detection system (AN/SPS-48E and AN/SPS-49 with AN/SYS-2) • Quick reaction modes. 	<ul style="list-style-type: none"> • Self defense shipboard weapons systems only.
E-2C Hawkeye	<ul style="list-style-type: none"> • Radar antenna height provides detection of low altitude targets out to the radar horizon. • Optimum over water detection and tracking capability. • Large airborne target detection capability out to 350nm. • Extensive IFF capability. • JTIDS type 2 • SATCOM capability. 	<ul style="list-style-type: none"> • Limited concurrent, warfare area mission support (because of crew tasking). • Degraded detection capability over land. • Limited on-station time (3 to 4 hrs). • No link simulcast capability.
F-14A Tomcat	<ul style="list-style-type: none"> • Two man crew. • Speed/Range/endurance • Long range weapons • TCS-BVR capability. • APX-76 IFF interrogator • Multi-mission aircraft. • ARC-182 radio. 	<ul style="list-style-type: none"> • High PRF radar degraded over land • Radar easily detected. • Large size. • Poor RWR/MWR/deceptive EA suite. • No all-weather/night ID capability. • No doppler-updated INS.
F-14B Tomcat	<ul style="list-style-type: none"> • All F-14A strengths. • Improved power plant. • Improved RWR/MWR 	<ul style="list-style-type: none"> • Same as F-14A.
F-14D Tomcat	<ul style="list-style-type: none"> • AN/APG-71 radar with good over land performance. • Medium PRF. • Improved RWR/MWR • JTIDS • NCTR/BVR capability. 	<ul style="list-style-type: none"> • System integration lacking. • Limited numbers in the fleet. • Limited deceptive EA. • Large size.
F/A-18 Hornet	<ul style="list-style-type: none"> • Multi-mission aircraft. • Medium PRF radar with good over land performance. • NCTR/BVR capability. 	<ul style="list-style-type: none"> • Lack of range. • Lack of IFF interrogator. • Limitation of one man crew in high threat environment.

Table 2-27. Navy platform air defense capabilities.

b. Navy Aviation Air Defense Weapons

Aircraft Type	Primary Roll	Air Search Radar Systems	Weapon Systems	ID Capabilities	Data Link Capabilities	Communications Capabilities	Combat Range
E-2C (Block II)	Air surveillance and aircraft control	APS-145	Detection range: over 300nm; over 2,000 tracks	IFF (M1-4) Limited ES capability, CID CAP	TADIL-A TADIL-J TADIL-C	HF UHF/VHF UHF SATCOM Havequick	4 hrs on station
F-14A/D	Air intercept, Strike	AWG-9 (A/B) APG-71 (D)	AIM-54 AIM-7 AIM-9 AIM-120 (D) 20 mm PGM Series	IFF TCS IRST (D)	TADIL-J (D) TADIL-C	UHF Havequick	1,400 nm with in-flight refueling
F-18C/D	Air intercept, Strike	APG-65	AIM-7 AIM-9 AIM-120 AGM-84 20 mm	NCTR (Electronic ID) IFF	TADIL-C	VHF UHF Havequick	575 nm with in-flight refueling
EA-6B	SEAD/Jamming EW intercept	APS-130	AGM-84	EW ID Comm intercept	TADIL-C	HF UHF/VHF Havequick	600 nm with in-flight refueling
S-3B	Antisurface warfare EW, Surveillance, Counter target	APS-137	AGM-65 AGM-84 Mk 80 Series	IFF (M1-4) EW ID	TADIL-A TADIL-C	HF UHF	1,800 nm with in-flight refueling
EP-3	EW, Communications	APS-116	N/A	IFF (M1-4) EW ID Comm ID	TADIL-A	HF UHF/VHF UHF SATCOM	2,000 nm
P-3C	Antisubmarine warfare, Antisurface warfare EW, Surveillance	APS-115/137	AGM-65 AGM-84 Torpedoes Mines Maverick SLAM	IFF EW ID	TADIL-A	HF UHF/VHF UHF SATCOM	2,070 nm

Table 2-28. Navy aviation air defense weapons.

2012. Army Air Defense

Weapons Characteristics	Army Patriot	Army SHORAD Avenger/Linebacker	Army SHORAD MANPADS
Targets	Air Defense: <ul style="list-style-type: none"> • Airplanes • Helicopters • UAV Missile Defense: <ul style="list-style-type: none"> • TBM • Cruise Missiles • TASM 	Air Defense: <ul style="list-style-type: none"> • Airplanes • Helicopters • Cruise Missiles • UAV 	Air Defense: <ul style="list-style-type: none"> • Airplanes • Helicopters • Cruise Missiles • UAV
Sensor range/ Planning range	90 km	40 km Sentinel Radar (Dependent on location of radar to Avenger) Onboard detection is visual or FLIR	Visual detection (dependent on location of radar to Avenger)
ID Capability	IFF Weighted system	IFF Visual	IFF Visual
Number of missiles loaded per launcher and platform	8 – 16	Division: <ul style="list-style-type: none"> • 12 (Avenger) • 8 (Linebacker) Armored Cavalry Regiment: <ul style="list-style-type: none"> • 6 (Linebacker) 	Heavy Division: <ul style="list-style-type: none"> • 8 teams Armored Cavalry Regiment: <ul style="list-style-type: none"> • 12 teams
Number of missiles loaded per launcher and platform	PAC-2 (4)	Avenger (8) Linebacker (4) with 6 on-board reloads	2 ready to fire 4 reloads with each team
Coverage angle of supporting radar	Track 120 degrees Search 90 degrees	360 degrees up to 30k	360 degrees up to 30k
Engagement range (planning)	50 km	4 km	4 km

Table 2-29. Army air defense capabilities.

2013. Maritime Prepositioning Force

	MPSRON-1	MPSRON-2	MPSRON-3
Square Feet	608,893	607,975	608,740
Containers	2,311	2,020	2,311
Bulk Fuel (gals)	5,545,890	5,831,700	5,730,480
Bulk Water (gals)	374,808	424,620	395,976
Water Production (gal/day)	100,00	125,000	100,00

Table 2-30. Maritime prepositioning force capabilities.

	MPSRON-1 (II MEF)	MPSRON-2 (I MEF)	MPSRON-3 (III MEF)
Flag Ship	SS Obregon	MV Hauge	MV Lummus
Alternate Flag Ship	MV Bobo SS Kocal SS Pless	MV Phillips MV Baugh MV Anderson MV Bonnyman	MV Button MV Lopez MV Williams
MPF (E)	USNS Martin	USNS Wheat	TBD
Time to Persian Gulf	10 days	3 days	14 days
Time to Korea	21 days	14 days	4 days

Notes: SS = Steam Ship
MV = Motor Vessel
USNS = United States Naval Ship

Table 2-31. Maritime prepositioning force ships and steaming times.

2014. Joint Support Systems

The joint surveillance, target attack radar system (JSTARS) is an airborne multi-mode radar surveillance/target acquisition system to detect and track moving or fixed targets for attack by standoff weapons and aircraft. JSTARS provides target information for pairing direct attack aircraft and standoff weapons against selected targets. The system is capable of being cued by other reconnaissance, surveillance, and target acquisition systems; able to respond rapidly to worldwide contingencies; and provide surveillance and attack information in all light and near-all-weather conditions. The system reports enemy location, size, direction, rate, and type target. The system uses a Boeing E-8C aircraft equipped with a phased-array antenna in a conformal belly pod that can operate both as a synthetic aperture side-looking radar to detect fixed surface targets or in a doppler mode to detect moving vehicles on a time sharing basis. The E-8C is equipped for secure communications using HAVE QUICK for anti-jam communications with Army units. The system includes the Army AN/TSQ-132 truck-mounted ground station modules and data link connectivity for transmitting raw radar data to the Army ground stations. Targeting information is transmitted to Air Force controllers on the ground via Joint Tactical Information Distribution System (JTIDS) and can also be provided directly to JTIDS equipped tactical aircraft.

JTIDS is a joint Service program that provides high-capacity, anti jam protected data distribution and voice communications to tactical forces in air defense, defensive counter-air, and anti-air warfare areas. JTIDS is a communications, navigation, and identification system intended to exchange surveillance and command and control (C2) information among various C2 platforms and weapons platforms to enhance varied missions of each of the Services. JTIDS provides the Army, Navy, Air Force, and Marine components with a secure, jam-resistant, high capacity data link communications system for use in a tactical combat environment. JTIDS is the communications component of the tactical digital information link (TADIL) designated Link-16, and is synonymous with the TADIL J message standard. The JTIDS family of terminals (Class 2 and 2H for the Air Force, Navy and Marine Corps; and 2M for Army) is a joint development program which employs time division multiple access, and spread spectrum techniques. JTIDS permits rapid and secure exchange of essential command control, and status information with all terminals in the tactical theater. Host platforms (i.e. E-3, E-8, F-15, RIVET JOINT, ABCCC, MAOC, and MCE) program and budget for JTIDS production terminals. The JTIDS provides an information distribution system for selected US Air Force and Navy Airborne Warning And Control System and tactical units. It features secure, jam resistant, low probability of exploitation tactical data and voice communications. It will provide precise tactical air navigation, relative navigation, and identification, and will have additional capabilities of common grid navigation. It will also use automatic relay capability inherent in the long range communications equipment. The system will be interoperable among the Services and NATO/Allied users equipped with JTIDS or the NATO multifunctional information distribution system. Anti-jam protection is achieved through frequency hopping, spread spectrum techniques. It allows sensor data exchange between platforms in real-time and provides integrated communications, relative navigation and identification, combat status and targeting information. It will be employed in air defense, defensive counter-air, and anti-air warfare mission areas. All terminals provide data communication in the LINK 16 data format.