STANDARD AIRCRAFT CHARACTERISTICS

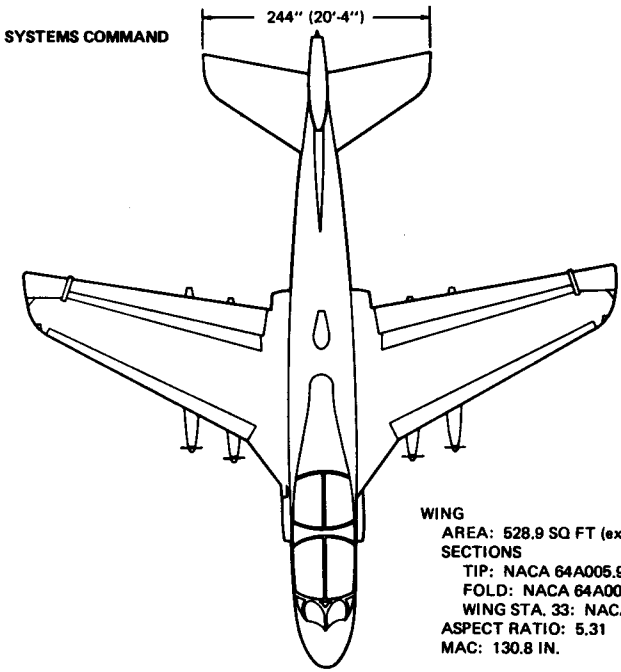
EA-6B

GRUMMAN

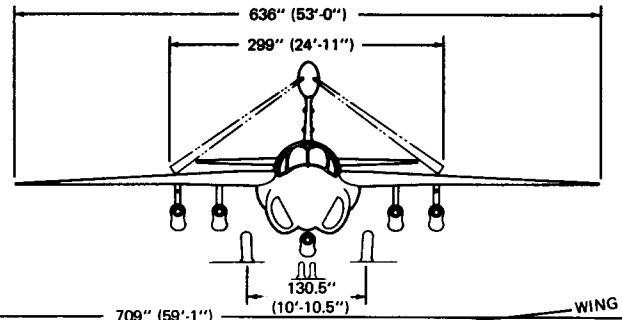
CLEARED
FOR OPEN PUBLICATION
JUL 26 1993
DIRECTOR, SPACE PROGRAMS
PUBLIC AFFAIRS OFFICE
NAVAL AIR SYSTEMS COMMAND

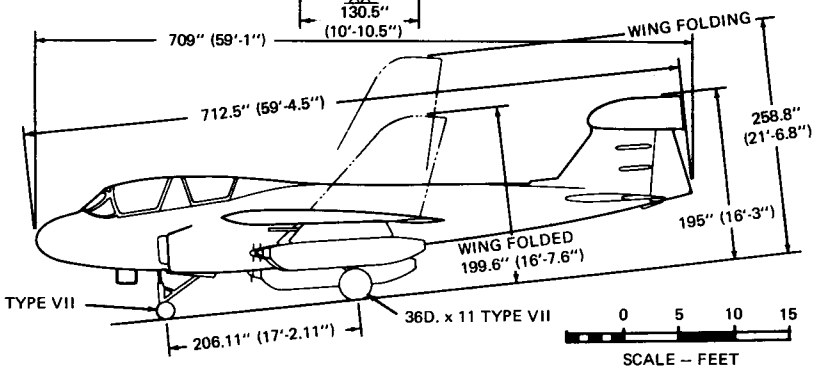
STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4A (Rev. 7-65)

NAVAL AIR SYSTEMS COMMAND



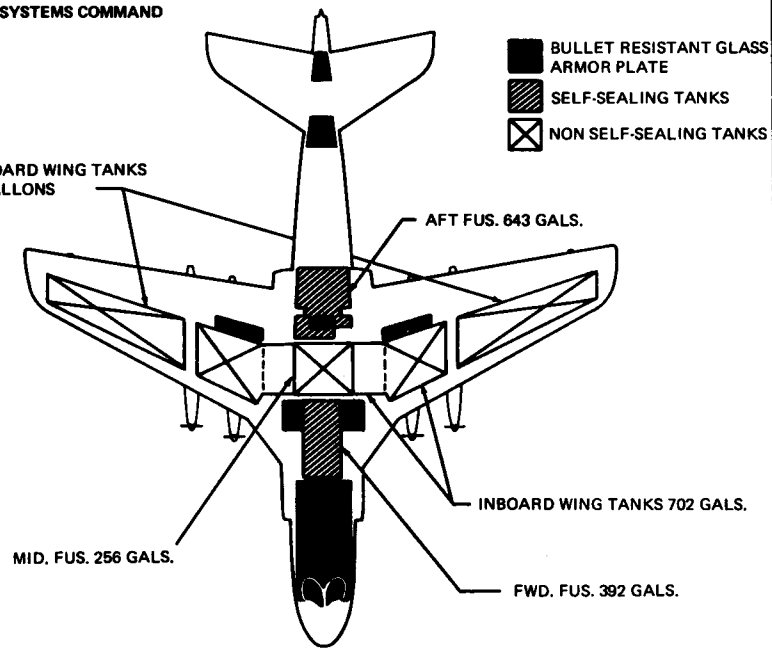
WING
AREA: 528.9 SQ FT (excluding fillets)
SECTIONS
TIP: NACA 64A005.9 MOD
FOLD: NACA 64A008.4 MOD
WING STA. 33: NACA 64A009 MOD
ASPECT RATIO: 5.31
MAC: 130.8 IN.

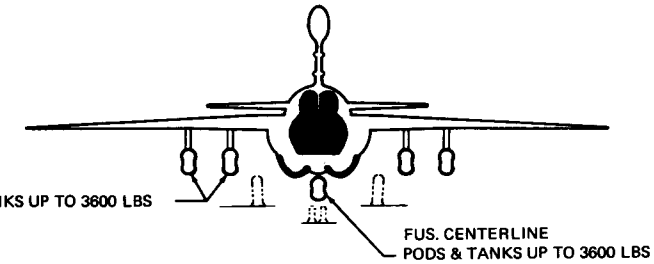


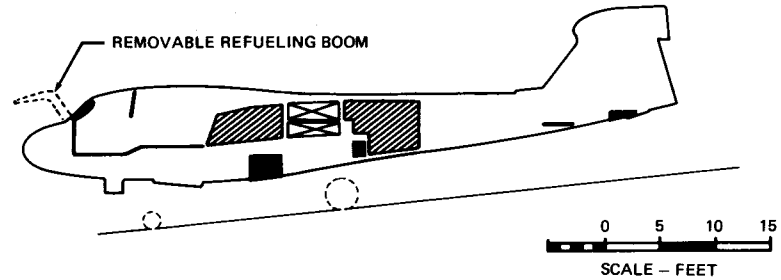


DESCRIPTIVE ARRANGEMENT

NAVAL AIR SYSTEMS COMMAND







ARMAMENT AND TANKAGE

STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4B (Rev. 7-65)

POWER PLANT

Number and Model	(2) J52-P-8A
Manufacturer	Pratt & Whitney
Engine Specification No.	N-1844A
Type	Twin-Spool Axial-Flow
Augmentation	none
Length	117 in.
Ejector Diameter	20.44 in.
Diameter of Nacelle Base	21.00 in.
Nacelle Base Area (each)	0.127 sq ft
Dry Weight	2,118 lbs

RATINGS

Static Sea Level Ratings and Specific Fuel Consumption

	THRUST	RPM	SFC
Take-Off	9300	12,060	.86
Military	9300	12,060	.86
Normal	8200	11,660	.81
Idle	510 (max.)	6,950	1.90

ELECTRONICS

OFFENSIVE COUNTERMEASURES

Tactical Jammer, Low-Band	OT-21/ALQ-99(V)
Tactical Jammer, P-Band	OR-41/ALQ-99 (V)
Tactical Jammer, S-Band	OR-42/ALQ-99 (V)
Surveillance Subsystem	OR-40/ALQ-99 (V)

DEFENSIVE COUNTERMEASURES

Systems Integration Receiver	ALR-42
Repeater-Jammer (2)	ALQ-41
Repeater-Jammer (2)	ALQ-100
Chaff Dispenser	ALE-29A
Communications-Jammer	ALQ-92

NAVIGATION

Air Data Computer	CP-1106/A
Search Radar	APQ-129A
Doppler Radar	APN-153
Radar Altimeter	APN-141
AFCS	ASW-16A
Attitude Reference Heading System	ASN-50
Vertical Display	AVA-1
Analog/Digital Converter	CV-2434/AYA-6
Synchro Signal Adapter	T-1073A/A

COMMUNICATIONS

IEC Package	ASQ-57B
UHF ADF	ARA-48
UHF Comm	RT-542/ASQ
TACAN	RT-541/ASQ
TACAN Decoder	KY-309/ASQ
IFF Coder	KY-533/ASQ
ICS	AIC-14A
HF Comm	ARC-105
Security	Juliett-28

MISSION AND DESCRIPTION

The EA-6B is a four place, all weather, twin-turbo-jet, electronic warfare aircraft designed for carrier and advanced-base operation. The EA-6B configuration is derived from the basic two place A-6A airframe through the addition of a forward cockpit and equipment bay, incorporation of a pod-shaped fairing on top of the vertical fin and by strengthening the airframe structure to assure adequate operational fatigue life. The five external store stations are retained and used to carry jammer pods or fuel tanks.

The primary mission of this airplane is tactical jamming of area defense, fixed and mobile enemy installations and targets of opportunity. The airplane is capable of jamming communication networks, fire control installations, and simultaneous multiple site jamming. The airplane is capable of in-flight refueling.

All primary flight control systems are irreversible and fully hydraulic powered, each employing a dual tandem actuating cylinder supplied by two independent continuously operating hydraulic systems. Longitudinal control is effected by an all movable slab stabilizer. Lateral control is provided by flaperons, while a conventional rudder is used for directional control.

High lift devices employed are leading edge slats and semi-Fowler type trailing edge flaps. Deceleration and glide path control is provided by split trailing edge, hydraulically actuated speed brakes located on the trailing edge of each wing tip. Main wheel anti-skid brakes and flaperon pop-up are utilized to provide short field landing capability. Nose tow catapulting is employed.

DEVELOPMENT

M-1 (modified A-6A) – aerodynamic flight tests, pod and antenna evaluation	May 1968
M-2 (modified A-6A) – weapon system flight evaluation	August 1968
P-1 First production airframe – first flight	April 1968
P-6 First aircraft delivered to fleet	January 1971

DIMENSIONS

Wing	
Area	528.9 sq ft
Span	53 ft 0 in.
MAC	130.8 in.
Sweepback (¼ chord)	25°
Length (maximum)	59 ft 4.5 in.
Height (normal static position)	16 ft 3 in.
Tread	10 ft 10.5 in.

WEIGHTS

LOADINGS	LBS	L.F.
Weight Empty	31,629	
Basic (Penetration Jamming Mission)	32,717	
Design (5 P&S Pods)	51,000	5.5
Combat (Penetration Jamming Mission)	47,656	5.5
Maximum Take-Off, overload (Basic catapulting design weight)	65,000	
Maximum Take-Off, normal (5 300-gal. drop tanks)	60,059	
Primary Mission Take-Off (5 P&S Pods)	53,825	
Maximum Landing (Basic landing design gross weight)	44,250	

FUEL AND OIL

No. of TANKS	GALS.	LBS	LOCATION
3	1,291	8,779	fuselage
3	977	6,644	wings
5 (300 gal.)	1,475	10,025	drop tanks

Fuel Grade	JP-5
Fuel Specification	MIL-F-5624C-1

OIL

Capacity	4.6 gallons/engine
Specification	MIL-L-23699, MIL-L-7808

ORDNANCE

Pods:
- Tactical Jammer, Low-Band
- Tactical Jammer, P-Band
- Tactical Jammer, S-Band

External Tanks:
- Aero 1D 300 gallon fuel tank

Ejector Bomb Racks:
- Aero 7A-1, four wing store stations
- Aero 7B-1, centerline store station

STANDARD AIRCRAFT CHARACTERISTICS, WEPS FORM 13100/4C (Rev. 7-65)

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION			(1) HI - HI - HI (4)Pylons Removed	(3) PENETRATION JAMMING (3)P+(2)S Band Pods	PENETRATION JAM'G (5) (1)P Band Pod+ (4)300 Gal. Tanks	PENETRATION JAM'G (7) (1)P+(1)S+ (3) Low Band Pods	STAND-OFF JAMMING (9) (1)P+(2)S Band Pods (2) 300 Gal. Tanks	STAND-OFF JAMMING (11) (1)P+(1)S Band Pods (3)300 Gal. Tanks	STAND-OFF JAMMING (13) (2)P+(2)S+ (1) Low Band Pod
TAKE-OFF WEIGHT		lb.	48425	53825	58785	53882	56338	57579	53855
Fuel internal/external (JP-5)		lb./lb.	15,422/–	15,422/–	15,422/8020	15,422/–	15,422/4010	15,422/6015	15,422/–
Payload		lb.	0	4783	929	4840	2889	1927	4813
Wing loading		lb./sq. ft.	91.6	101.8	111.1	101.9	106.5	108.9	101.8
Stall speed—power-off/take-off power		kn/kn.	112.0/96.3	121.0/106.7	126.5/113.5	121.0/106.7	123.8/110.1	125.0/111.8	121.0/106.7
Take-off run at S.L. – calm	(A)(D)	ft.	2450	3230	4090	3250	3640	3860	3240
Take-off run at S.L. – 25 kn. wind	(A)(D)	ft.	1630	2210	2900	2230	2530	2700	2220
Take-off to clear 50 ft. – calm	(A)(D)	ft.	3130	4000	4930	4020	4460	4690	4010
Max. speed/altitude	(B)	kn./ft.	529/S.L.	506/S.L.	507/S.L.	505/S.L.	506/S.L.	506/S.L.	505/S.L.
Rate of climb at S.L.	(A)	fpm.	7730	5330	4720	5150	5020	4950	5270
Time: S.L. to 20,000 ft.	(A)	min.	3.3	5.0	5.8	5.3	5.4	5.4	5.1
Time: S.L. to 30,000 ft.	(A)	min.	6.2	9.9	12.0	10.5	10.8	11.1	10.1
Service ceiling (100 fpm)	(A)	ft.	41,400	36,800	34,800	36,600	35,800	35,300	36,700
Combat range		n.mi.	1565	1093	2061	1068	1574	1828	1086
Average cruising speed		kn.	416	410	415	409	413	414	410
Cruising altitude(s)		ft.	34,400–40,200	31,350–36,150	29,350–38,750	31,250–36,050	30,300–37,450	30,100–38,150	31,300–36,100
Combat radius/mission time		n.mi./hr.	750/3.69	341/1.99	800/4.18	320/1.90	575/3.80	707/4.42	335/2.64
Average cruising speed		kn.	415	349	389	342	413	413	409
IFR radius/mission time	(C)	n.mi./hr.	–	697/3.95	–	687/3.91	–	–	–

COMBAT LOADING CONDITION			(2) (4) PYLONS REMOVED	(4) PODS RETAINED	(6) TANKS OFF POD RETAINED	(8) PODS RETAINED	(10) TANKS OFF POD RETAINED	(12) TANKS OFF POD RETAINED	(14) PODS RETAINED
COMBAT WEIGHT		lb.	42256	47656	49971	47713	48168	48409	47686
Engine power			MILITARY	MILITARY	MILITARY	MILITARY	MILITARY	MILITARY	MILITARY
Fuel (JP-5)		lb.	9253	9253	15,422	9253	11,559	12,862	9253
Combat speed/combat altitude	(B)	kn./ft.	467/37,200	507/S.L.	521/S.L.	506/S.L.	470/30,000	473/30,000	463/30,000
Rate of climb/combat altitude	(A)	fpm/ft.	1820/37,200	6170/S.L.	6500/S.L.	5970/S.L.	2000/30,000	2180/30,000	1770/30,000
Combat ceiling (500 fpm)	(A)	ft.	42,600	37,600	38,200	37,400	38,300	38,700	37,500
Rate of climb at S.L.	(A)	fpm.	8990	6170	6500	5970	6510	6680	6110
Max. speed at S.L.	(B)	kn.	530	507	521	506	514	517	506
Max. speed/altitude	(B)	kn./ft.	530/S.L.	507/S.L.	521/S.L.	506/S.L.	514/S.L.	517/S.L.	506/S.L.
LANDING WEIGHT		lb.	34,907	40,552	36,948	40,630	38,774	37,871	40,584
Fuel		lb.	1904	2149	2399	2170	2275	2324	2151
Stall speed—power-off/approach power		kn./kn.	95.0/89.0	104.9/98.0	98.3/92.0	105.0/98.1	101.7/95.3	100.1/93.7	104.9/98.0
Landing distance-ground roll/over 50 ft. obst.		ft./ft.	1640/2310	1840/2550	1720/2400	1850/2560	1780/2480	1750/2440	1840/2550

NOTES

PERFORMANCE BASIS: Flight Test.

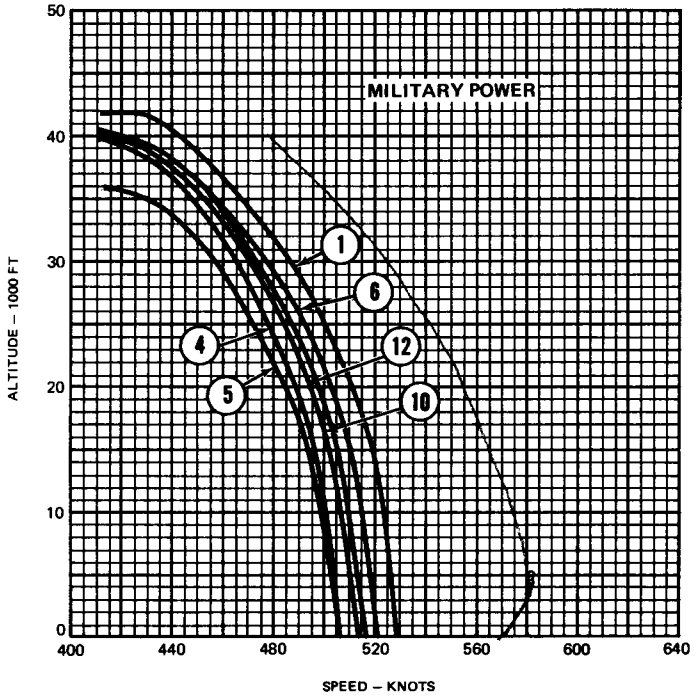
SPOTTING: A total of 59 airplanes can be accommodated in a safe parking area on the flight and hangar decks of a CVA-19 class angled deck carrier.

FERRY RANGE with 5-300 gallon drop tanks (retained) is 2037 n.mi.

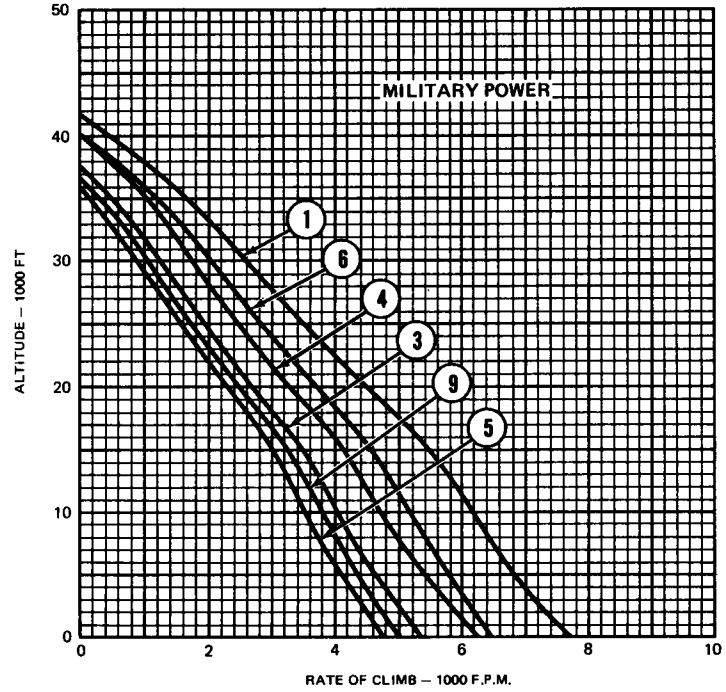
(A) Military rated thrust and pods windmilling.
(B) Military rated thrust and pods jamming.
(C) Inflight refueling rendezvous point was selected as that point in the mission where the receiver aircraft has sufficient fuel, plus standard reserve, to return to base if inflight refueling is not accomplished.
(D) Maximum effort take-off.

STANDARD AIRCRAFT CHARACTERISTICS, N PS FORM 13100/4 D (Rev. 7-65)

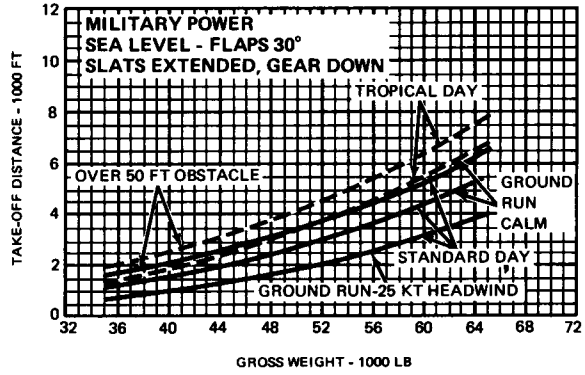
SPEED



CLIMB



TAKE-OFF

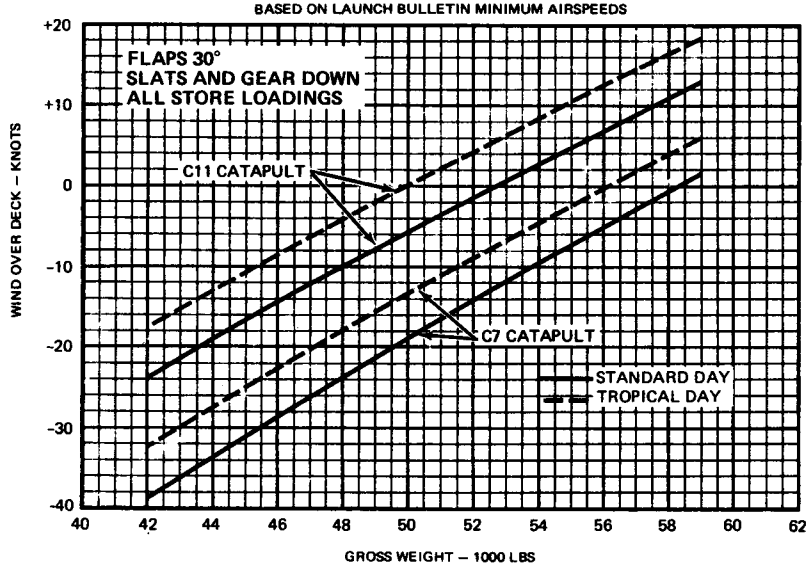


◯ LOADING CONDITION COLUMN NUMBER

STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4G (REV. 7-65)

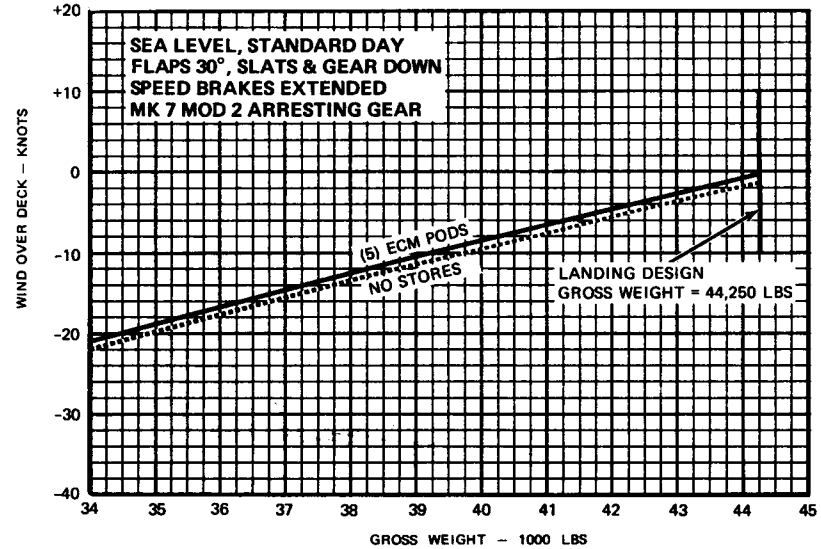
WIND OVER DECK REQUIRED FOR CATAPULTING VS. GROSS WEIGHT

BASED ON LAUNCH BULLETIN MINIMUM AIRSPEEDS



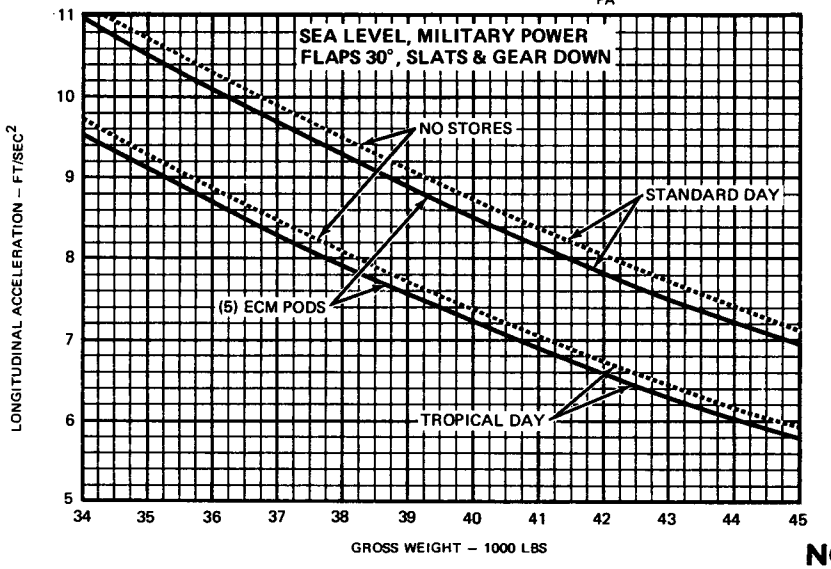
WIND OVER DECK REQUIRED FOR ARRESTING VS. GROSS WEIGHT

BASED ON 17 UNITS A.D.D. CARRIER APPROACH SPEEDS



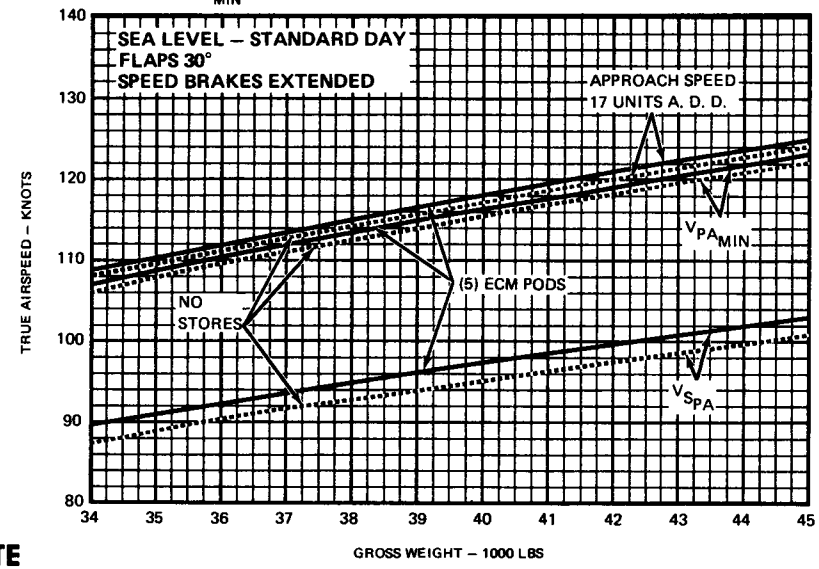
WAVE-OFF ACCELERATION

LONGITUDINAL ACCELERATION AT 1.15 $V_{S_{PA}}$



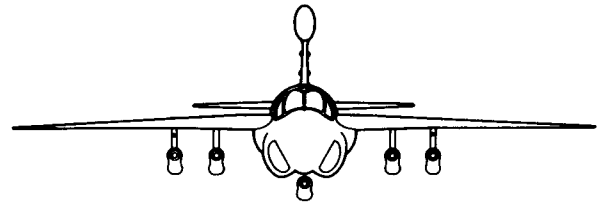
CARRIER APPROACH AND STALL SPEEDS

$V_{PA_{MIN}}$ BASED ON 5 SECONDS TIME TO CLIMB 50 FEET AT SEA LEVEL



NOTE

- Catapulting wind over deck based on: 1) aircraft minimum airspeeds acquired in the January 1971 carrier suitability trials; and 2) appropriate catapulting maximum service capacity deadload endspeeds with aircraft thrust effects added. These curves should be used for planning purposes only. Actual catapulting operation should be in accordance with applicable Aircraft Technical Orders and Catapult Launch Bulletins.



	OUTBOARD	INBOARD	CENTERLINE	INBOARD	OUTBOARD
ECM PODS	(1) TACTICAL JAMMER, LOW BAND (1) TACTICAL JAMMER, P-BAND (1) TACTICAL JAMMER, S-BAND	(1) TACTICAL JAMMER, LOW BAND (1) TACTICAL JAMMER, P-BAND (1) TACTICAL JAMMER, S-BAND	(1) TACTICAL JAMMER, LOW BAND (1) TACTICAL JAMMER, P-BAND (1) TACTICAL JAMMER, S-BAND	(1) TACTICAL JAMMER, LOW BAND (1) TACTICAL JAMMER, P-BAND (1) TACTICAL JAMMER, S-BAND	(1) TACTICAL JAMMER, LOW BAND (1) TACTICAL JAMMER, P-BAND (1) TACTICAL JAMMER, S-BAND
FUEL TANKS	(1) 300 GALLON DROP TANK	(1) 300 GALLON DROP TANK	(1) 300 GALLON DROP TANK	(1) 300 GALLON DROP TANK	(1) 300 GALLON DROP TANK