

S I K O R S K Y



# S-70B INTERNATIONAL SEAHAWK

TECHNICAL INFORMATION



# S-70B INTERNATIONAL SEAHAWK HELICOPTER

## LINEAGE

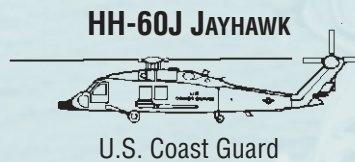
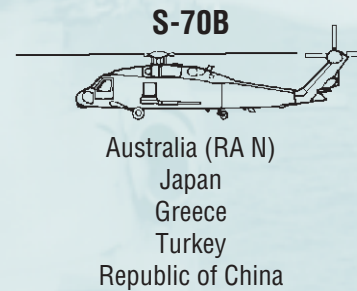
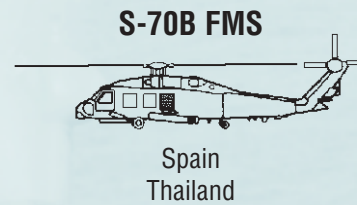
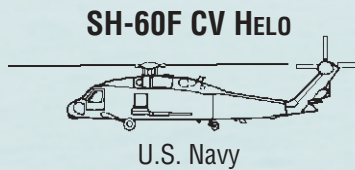
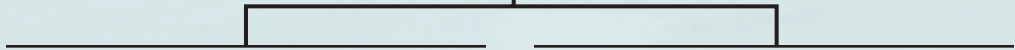
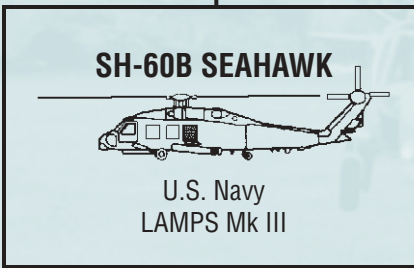
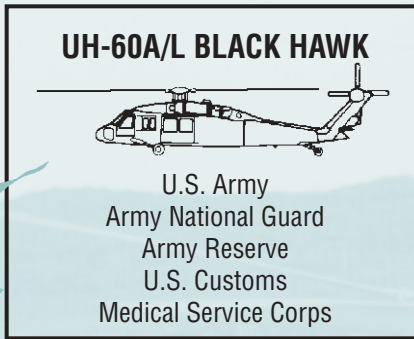
## International SEAHAWK Lineage

*S-70B is a derivative of the legendary BLACK HAWK helicopter*

The S-70B helicopter, a derivative of the U.S. Navy SH-60B SEAHAWK, is the most modern and capable Under Sea Warfare (USW) and Anti-Surface Warfare (ASUW) helicopter in the world.

The S-70B has a fully integrated glass cockpit with smart multi-function liquid crystal displays and a mission management system. Its flexible mission package includes dipping sonar, ESM, FLIR, multi-mode radar, ASE, and Penguin and Hellfire missiles.

Multi-mission capable, the S-70B can perform Search and Rescue (SAR), Medical Evacuation (MEDEVAC), surveillance, Vertical Replenishment (VERTREP), and utility missions.





## MISSIONS

- Anti-submarine Warfare (ASW)
- Anti-Surface Warfare (ASUW)
- Search and Rescue (SAR)
- Medical Evacuation (MEDEVAC)
- Vertical Replenishment (VERTREP)
- Utility - Logistics and Troop Transport



## S-70B Specifications

### Weights, Powerplant Ratings and Performance

## TECHNICAL INFORMATION

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#### WEIGHTS

■ Maximum take-off gross weight	21,884 lb	9947.3 kg
■ Weight empty		
- SAR configuration	15,200 lb	6909.1 kg
- ASW configuration	15,590 lb	7086.4 kg
- ASUW configuration	15,504 lb	7047.3 kg

#### POWERPLANT RATINGS

Per engine, standard day, sea level

■ Engine type	Two General Electric T700-GE-401C	
■ 2.5-minute One Engine Inoperative (OEI) contingency	1,940 shp	1,447 kw
■ 10-minute takeoff power	1,890 shp	1,409 kw
■ 30-minute intermediate power	1,800 shp	1,342 kw
■ Maximum continuous power	1,662 shp	1,239 kw
■ Dual engine airframe rating	3,400 shp	2,533 kw
■ Fuel capacity (internal)	588 gal	2,226.2 l

#### PERFORMANCE

Standard day at 21,884 lb except where indicated

■ Maximum speed, sea level (VNE)	180 kts	180 kts
■ Maximum cruise speed, sea level	150 kts	150 kts
■ Maximum cruise speed, 4,000 ft ISA + 15°C	133 kts	133 kts
■ Maximum rate of climb	1,650 ft/min	8.38 m/sec
■ Hover ceiling in-ground effect (T.O.P.)	7,750 ft	2,362.8 m
■ Hover ceiling out-of-ground effect (T.O.P.)	Sea level	Sea level
■ Twin engine service ceiling	12,000 ft	3,658.5 m
■ OEI service ceiling	2,000 ft	610 m
■ Range at Long Range Cruise Speed*	590 nm	1,092 km

\* SAR configuration, internal fuel plus 2 external tanks, sea level, 132 knots, 20-minute reserve

S-70B SEAHAWKS are powered by two T700-GE-401C engines, which provide efficient, reliable power in all types of operating conditions





### S-70B Specifications Dimensions and Cabin Data

#### AIRCRAFT DIMENSIONS

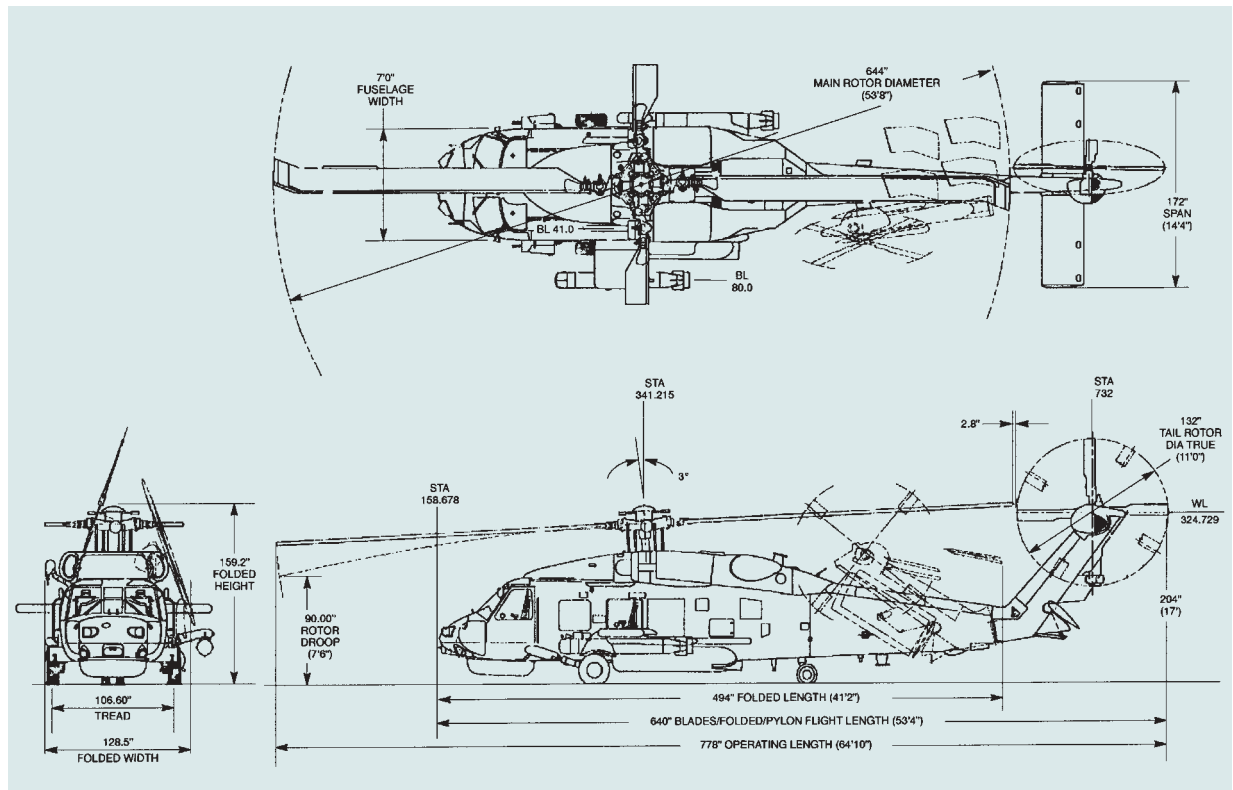
■ Overall length	64.83 ft	19.76 m
■ Overall width	53.67 ft	16.36 m
■ Overall height	17.16 ft	5.23 m
■ Fuselage width	7.00 ft	2.13 m
■ Fuselage width (including horizontal stabilizer)	14.33 ft	4.37 m
■ Folded length (main rotor, tail pylon and stabilator folded)	41.19 ft	12.55 m
■ Folded length (rotors folded, pylon flight position)	53.25 ft	16.23 m
■ Folded width	10.71 ft	3.26 m
■ Folded height (main rotor, tail pylon and stabilator folded)	13.27 ft	4.04 m
■ Wheel base	15.48 ft	4.72 m
■ Main wheel tread	8.88 ft	2.71 m

#### ROTORS DIMENSIONS

■ Main rotor diameter	53.67 ft	16.35 m
■ Tail rotor diameter	11.00 ft	3.35 m

#### CABIN INFORMATION

■ Cabin length	10.75 ft	3.28 m
■ Cabin width	6.08 ft	1.85 m
■ Cabin height	4.42 ft	1.34 m
■ Cabin area	65.40 sq ft	6.08 sq m
■ Cabin volume	298.60 cu ft	8.46 cu m
■ Seating capacity		
- SAR/Utility configuration		2 pilots plus 6 passengers
- ASW configuration		2 pilots plus 3 passengers
- ASUW configuration		2 pilots plus 5 passengers





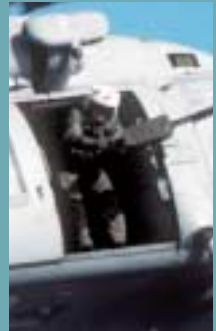
## Instrument Panel

*International SEAHAWK panel features large, easy to read displays*



## TECHNICAL INFORMATION

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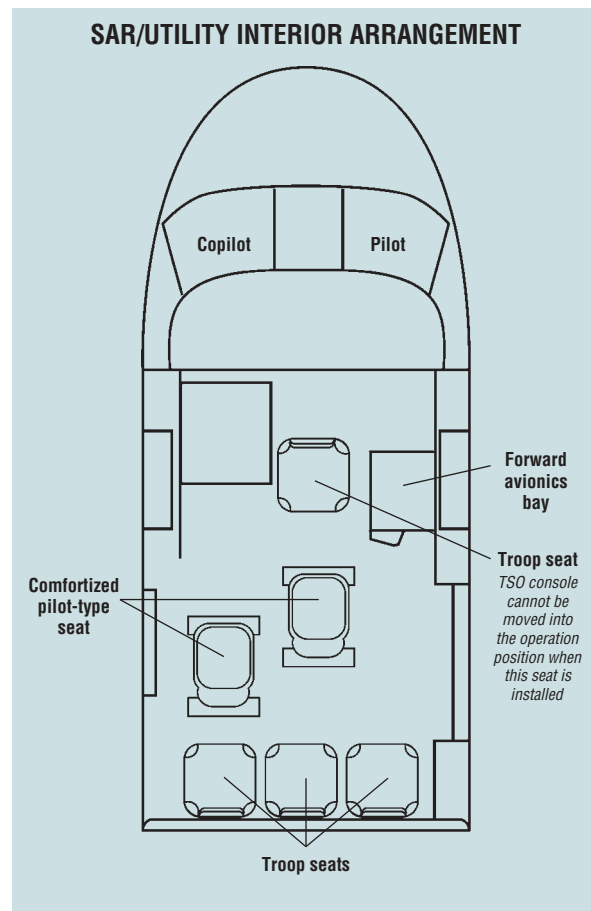
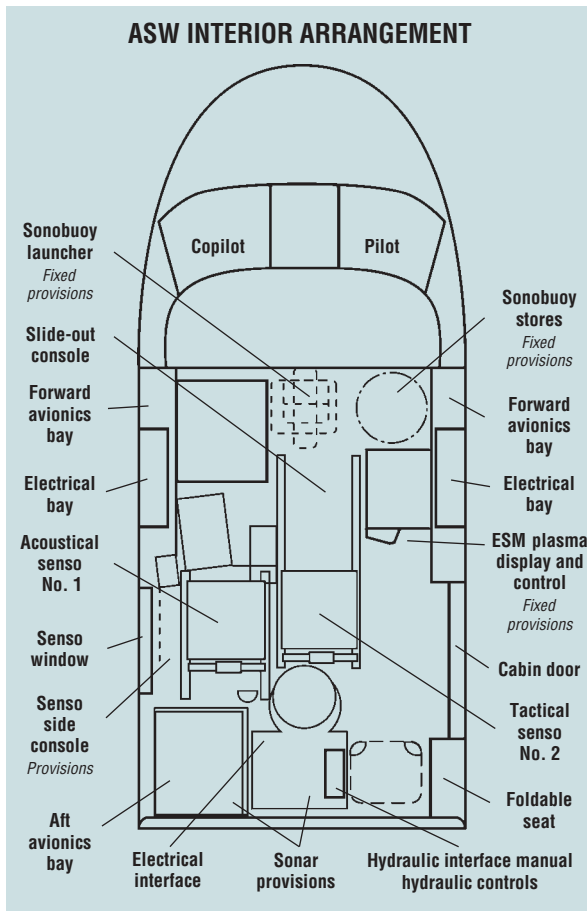


Large sliding cabin door on right side of aircraft allows fast and easy access to cabin



## Cabin Configurations

*Large cabin allows multiple mission specific cabin arrangements*





## Standard Configuration

### *Airframe, Powerplant, Fuel System, Rotors, Controls and Electrical System*

#### AIRFRAME

- Nose and transition section avionics compartments
- Two hinged cockpit doors with jettisonable windows
- Heated glass windshield
- Non-retractable landing gear with pivoting tail gear and main wheel brakes
- Air-oil energy absorbing tail bumper
- Dual windshield wipers and washers
- Dual rear view mirrors
- Data case
- Thermal and acoustic interior hard panels
- Non-slip floors
- Left side cabin senso tinted, jettisonable window
- Right hand cabin sliding door with tinted, jettisonable window
- Emergency flotation system
- Manually folding tail rotor pylon
- Three-piece folding, slewable tail stabilator with automatic and manual control
- Low reflective paint

#### POWERPLANT AND FUEL SYSTEM

- Dual General Electric T700-GE-401C turboshaft engines with integral particle separators
- Auxiliary power unit (APU) for start, ground power, and in-flight emergency power
- Dual independent suction fuel systems with cross feed capability
- Dual crashworthy fuel tanks, single point pressure fuel filler, 588 US gallon capacity
- Low level fuel warning system
- Helicopter In-Flight Refueling (HIFR) capability
- Fuel dump capability
- Two external fuel tank provisions
- Engine and APU fire detection and extinguishing system
- Engine inlet anti-icing system
- Engine water wash connections
- Dual-input main transmission rated at 3,400 shp for takeoff
- Intermediate and tail gearboxes with interconnecting driveshafts
- Magnetic chip detectors with fuzz burn-off capability
- Manually actuated rotor brake
- Environmental control system (air conditioning and heating)

#### ROTORS AND CONTROLS

- Four-blade articulated main rotor with one-piece titanium hub and elastomeric bearings
- Main rotor blades with titanium spars, fiberglass skins, integral heating elements, and honeycomb core
- Bifilar vibration absorber
- Automatic main rotor blade folding capability
- Blade securing system (when folded)
- Four blade flexbeam tail rotor with integral heating elements
- Main rotor blade de-ice system
- Tail rotor blade de-ice system
- Dual independent 3,000 psi hydraulic systems with third, back-up, electrically driven system
- Dual redundant flight control servo system
- Dual Stability Augmentation System (SAS)
- Automatic Flight Control System (AFCS)
- Tail rotor centering quadrant
- Dual redundant and isolated pilot flight controls

#### ELECTRICAL

- Dual 30/45 KVA oil cooled AC generators
- Dual 200 amp DC converters
- Single 5.5 ampere-hour nickel-cadmium battery
- Single 20/23.8 KVA APU-driven AC generator
- AC external power receptacle with over-voltage protection
- One 450-watt searchlight controllable from collective sticks
- One rotor head light
- Two dual color anti-collision strobe lights
- Three 450-watt hover floodlights
- Side and tail position lights
- Integral white interior lighting
- One cockpit thunderstorm/utility light
- Three cabin dome lights
- Three general purpose utility lights



*The powerful S-70B provides a stable platform for SAR and CSAR operations*



## Standard Configuration

### Instruments, Comm/Nav, Tactical Data System and Mission Equipment

#### INSTRUMENTS

- Four Multi-Function Displays (MFDs) for pilotage, EICAS, mission display; 6" x 8", color, LCD
  - Fifth MFD operates at the No. 2 Tactical Senso station in the cabin
- Two display control panels (pilot, copilot)
- Two sets of reversion control switches (pilot, copilot)
- One APN-194 radar altimeter with two indicators
- One stabilator position indicator
- Dual low profile, glareshield-mounted master warning panels
- One outside air temperature indicator
- One back-up attitude indicator, with its own battery power
- One back-up airspeed indicator
- One back-up barometric altimeter
- One standby magnetic compass
- Two digital clocks
- Two air data computers, dual pitot static systems, with pitot and static port heat
- Two CN-1314 attitude gyros
- One ASN-43 heading reference system, gyro and flux valve *(note: EGI under nav systems)*
- Dual low profile, glareshield mounted master warning panels
- Two turn rate gyros
- Two data concentrator units

#### COMMUNICATIONS AND NAVIGATION

- Two V/UHF radios MXF-484
  - Voice security optional
- One HF radio HF-9000D
  - Voice security optional
- One IFF transponder APX-100
  - Transponder security optional
- C-4860 ICS (5 stations)
- One emergency locator transmitter
- One LN-100G enhanced GPS inertial navigation
- One AN/ARN-217 Doppler radar navigation sensor
- One AN/ARN-153 TACAN
- Two ARN-147 VOR/ILS
- One AN/ARN-149 LF/ADF
- One DF-310E U/VHF direction finder
- Two Control Display Units for FMS and integrated com and nav control; a third CDU operates at the No. 2 Tactical Senso station in the cabin

#### TACTICAL DATA SYSTEM

- Mission display system operating within the two inboard MFDs on the Instrument panel
  - Fifth MFD provides mission displays for the No. 2 Tactical Senso station in the cabin
- Link-11 system
- Dual data recorder/loaders for FMS and mission functions
- Multi-function slew controllers (pilot, copilot, TSO)

#### MISSION EQUIPMENT

- Sonar system AQS-18A or HELRAS
  - Growth for sonobuoys
- Radar APS-143
- FLIR AAS-44
- ESM LR-100
- Countermeasures dispenser system ALE-47
- IRCM ALQ-144
- Armament system controller (ASN-150)
- Torpedo Mk-46
- Anti-surface missiles
  - Hellfire
  - Penguin
- ASIST or RAST
- 600 pound/272 kilogram capacity rescue hoist
- Left hand extended pylon
- Provisions for 6000 pound/2722 kilogram capacity external cargo hook



Forward Looking  
Infra-Red (FLIR)  
system







## Equipment Weight Build Up SAR, ASW and ASUW Configurations

	SAR	ASW	ASUW HELLFIRE	PENGUIN
<b>Weight empty - standard aircraft</b>	<b>13,913 lb</b> <b>6,311 kg</b>	<b>13,913 lb</b> <b>6,311 kg</b>	<b>13,913 lb</b> <b>6,311 kg</b>	<b>13,913 lb</b> <b>6,311 kg</b>
■ HF-9000 radio	■	■	■	■
■ Global Positioning System MAGR-3A	■	■	■	■
■ Electronic Support Measures (ESM) LR-100	■	■	■	■
■ IR countermeasures - dual transmitters ALQ-144	■	■	■	■
■ Chaff/flare dispenser AN/ALE-47	■	■	■	■
■ Night Vision Goggle compatibility	■	■	■	■
■ FLIR				
- Provisions	■	■	■	■
- Equipment	■		■	■
■ Dipping sonar AN/AQS-18(V)3		■		
■ Sonar console, aft avionics rack, CDU		■	■	■
■ Cover plate dipping sonar	■	■	■	■
■ Stores loaded switch	■	■	■	■
■ Hellfire missiles				
- Provisions	■	■	■	
- Equipment			■	
- Missile launcher system			■	
■ Penguin missiles				
- Provisions				■
- Release system				■
■ Left hand extended pylon (dry)	■	■	■	■
■ Rack BRU-14 inboard LH	■	■	■	■
■ Rack BRU-14 inboard RH	■	■	■	■
■ Rack BRU-14 outboard LH		■	■	■
■ Basic structure and wiring RHEP				■
■ Right hand extended pylon (dry)				■
■ Rack BRU-14 outboard RH				■
<b>Equipped weight</b>	<b>14,775 lb</b> <b>6,702 kg</b>	<b>15,306 lb</b> <b>6,943 kg</b>	<b>15,079 lb</b> <b>6,840 kg</b>	<b>15,343 lb</b> <b>6,959 kg</b>
■ External auxiliary fuel tank	■	■	■	
■ External auxiliary fuel tank	■		■	
■ SAR equipment (allowance)	■	■	■	■
■ Pilots	2	2	2	2
■ Crew	2	2	1	1
<b>Operating weight</b>	<b>15,920 lb</b> <b>7,221 kg</b>	<b>16,310 lb</b> <b>7,398 kg</b>	<b>16,044 lb</b> <b>7,277 kg</b>	<b>16,026 lb</b> <b>7,269 kg</b>

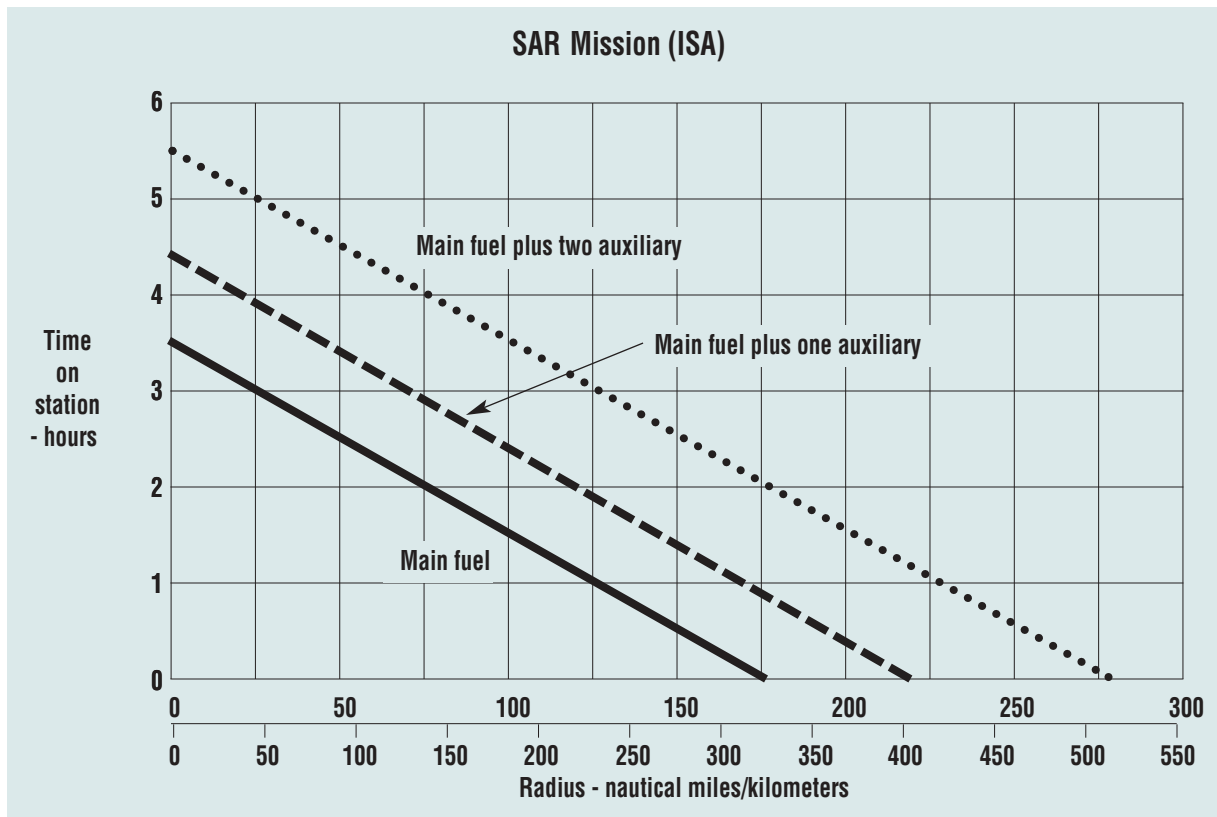




# Time on Station - Radius of Action Performance

## Search and Rescue (SAR) Configuration

### TECHNICAL INFORMATION



Mission equipment includes a 600 pound/ 272 kilogram capacity rescue hoist

#### SAR MISSION

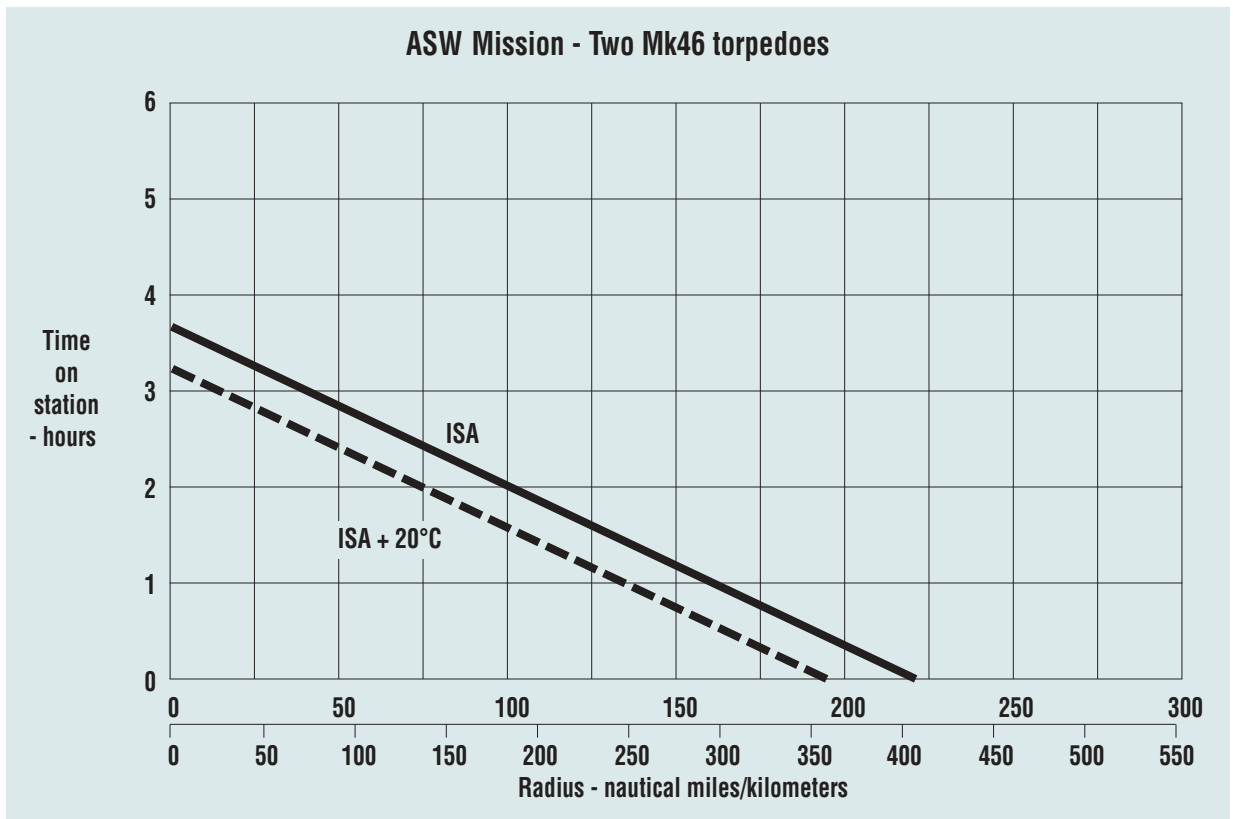
- Warm/takeoff using five minutes fuel at MCP
- Cruise out to search zone at speed for 99% best specific range
- Hover Out of Ground Effect (HOGE)
- Pick up 6 rescuees at 200 lb/91 kg each using 20 minutes hover fuel
- Return at speed for 99% best specific range
- Reserve: 20 minutes of flight at speed for 99% best specific range

<b>SAR operating weight</b>	<b>15,920 lb</b>	<b>7,221 kg</b>
■ Fuel - main (JP-5)	4,012 lb	1,820 kg
■ Fuel - external auxiliary (tank 1)	816 lb	370 kg
■ Fuel - external auxiliary (tank 2)	816 lb	370 kg
<b>SAR mission gross weight</b>	<b>21,564 lb</b>	<b>9,781 kg</b>





## Time on Station - Radius of Action Performance Anti-Submarine Warfare (ASW)



### ASW MISSION

- Warm/takeoff using five minutes fuel at MCP
- Cruise out to search zone at speed for 99% best specific range
- Hover Out of Ground Effect (HOGE) for 50% of time on station
- Cruise at best endurance speed for 50% of time on station
- Return at speed for 99% best specific range
- Reserve: 20 minutes of flight at speed for 99% best specific range

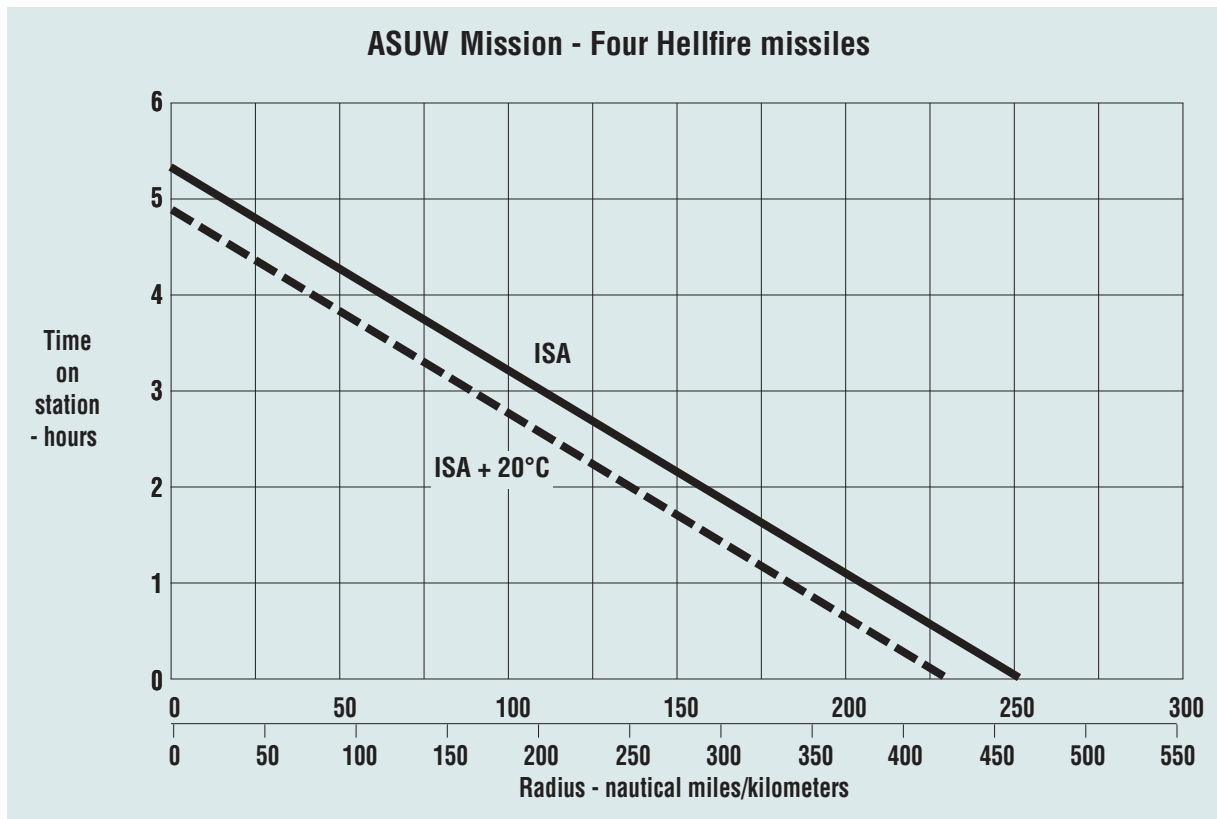
<b>ASW operating weight</b>	<b>16,310 lb</b>	<b>7,398 kg</b>
■ Chaff and flare (allowance)	23 lb	10 kg
■ Mk46 torpedo	526 lb	239 kg
■ Mk46 torpedo	526 lb	239 kg
■ Fuel - main (JP-5)	4,012 lb	1,820 kg
■ Fuel - external auxiliary	487 lb	221 kg
<b>ASW mission gross weight</b>	<b>21,884 lb</b>	<b>9,927 kg</b>





# Time on Station - Radius of Action Performance

## Anti-Surface Unit Warfare (ASUW)



The S-70B is certified to carry up to four Hellfire missiles in ASUW missions

### ASUW MISSION

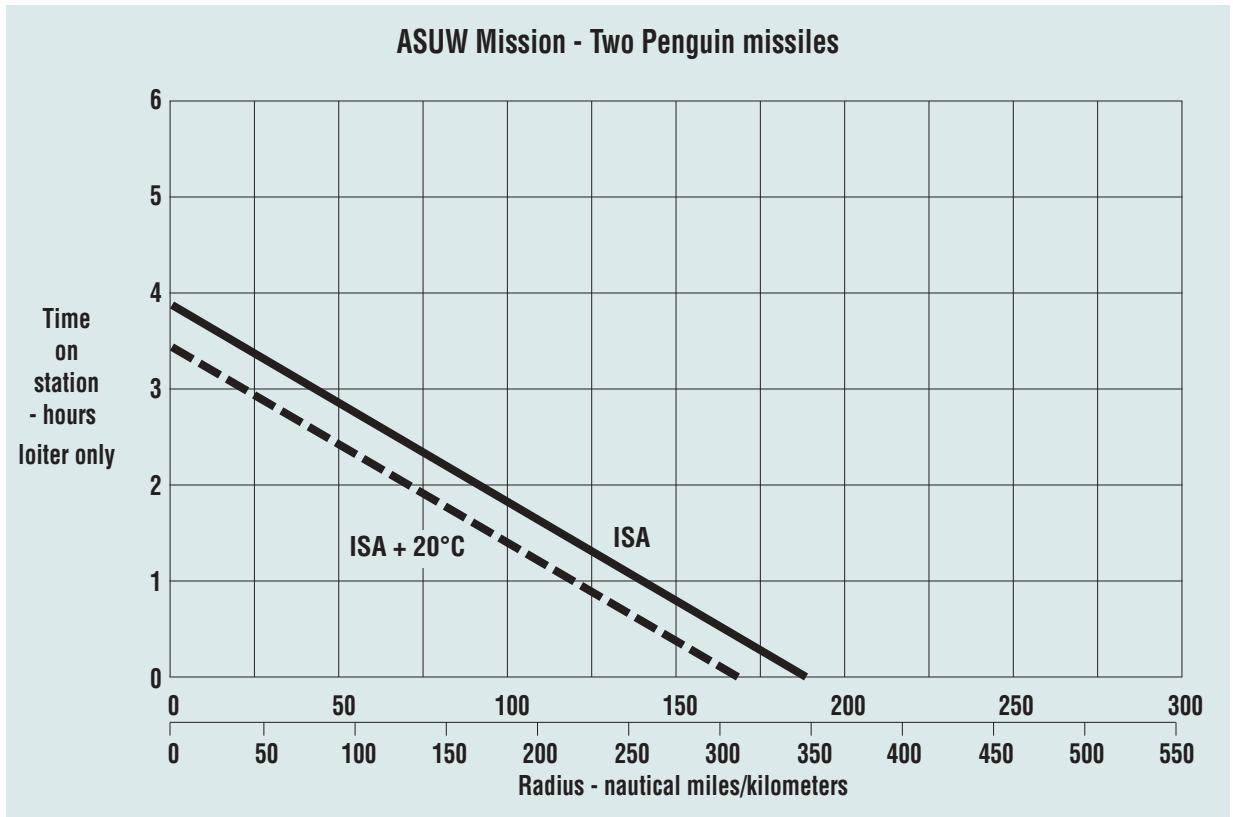
- Warm/takeoff using five minutes fuel at MCP
- Cruise out to search zone at speed for 99% best specific range
- Loiter on station at best endurance speed
- Return at speed for 99% best specific range
- Reserve: 20 minutes of flight at speed for 99% best specific range

<b>ASUW operating weight</b>	<b>16,044 lb</b>	<b>7,277 kg</b>
■ Chaff and flare (allowance)	23 lb	10 kg
■ Four Hellfire missiles	404 lb	183 kg
■ Fuel - main (JP-5)	4,012 lb	1,820 kg
■ Fuel - external auxiliary (tank 1)	816 lb	370 kg
■ Fuel - external auxiliary (tank 2)	585 lb	265 kg
<b>ASUW mission gross weight</b>	<b>21,884 lb</b>	<b>9,925 kg</b>





## Time on Station - Radius of Action Performance Anti-Surface Unit Warfare (ASUW)



### ASUW MISSION

- Warm/takeoff using five minutes fuel at MCP
- Cruise out to search zone at speed for 99% best specific range
- Loiter on station at best endurance speed
- Return at speed for 99% best specific range
- Reserve: 20 minutes of flight at speed for 99% best specific range

<b>ASUW operating weight</b>	<b>16,026 lb</b>	<b>7,269 kg</b>
■ Chaff and flare (allowance)	23 lb	10 kg
■ Two Penguin missiles	1,766 lb	801 kg
■ Fuel - main (JP-5)	4,012 lb	1,820 kg
<b>ASUW mission gross weight</b>	<b>21,827 lb</b>	<b>9,900 kg</b>

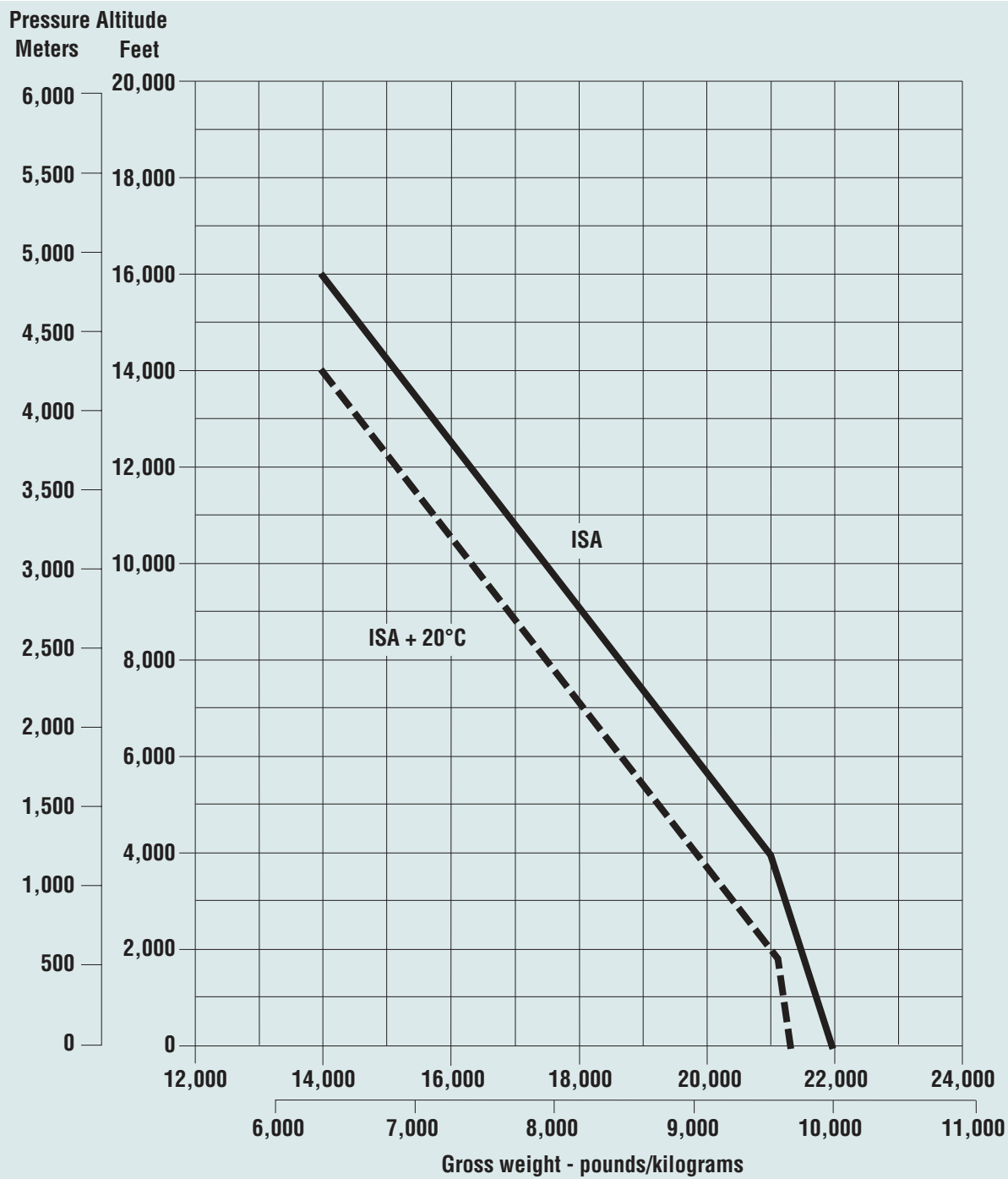




# Hover Ceiling

## Out of Ground Effect

TECHNICAL INFORMATION

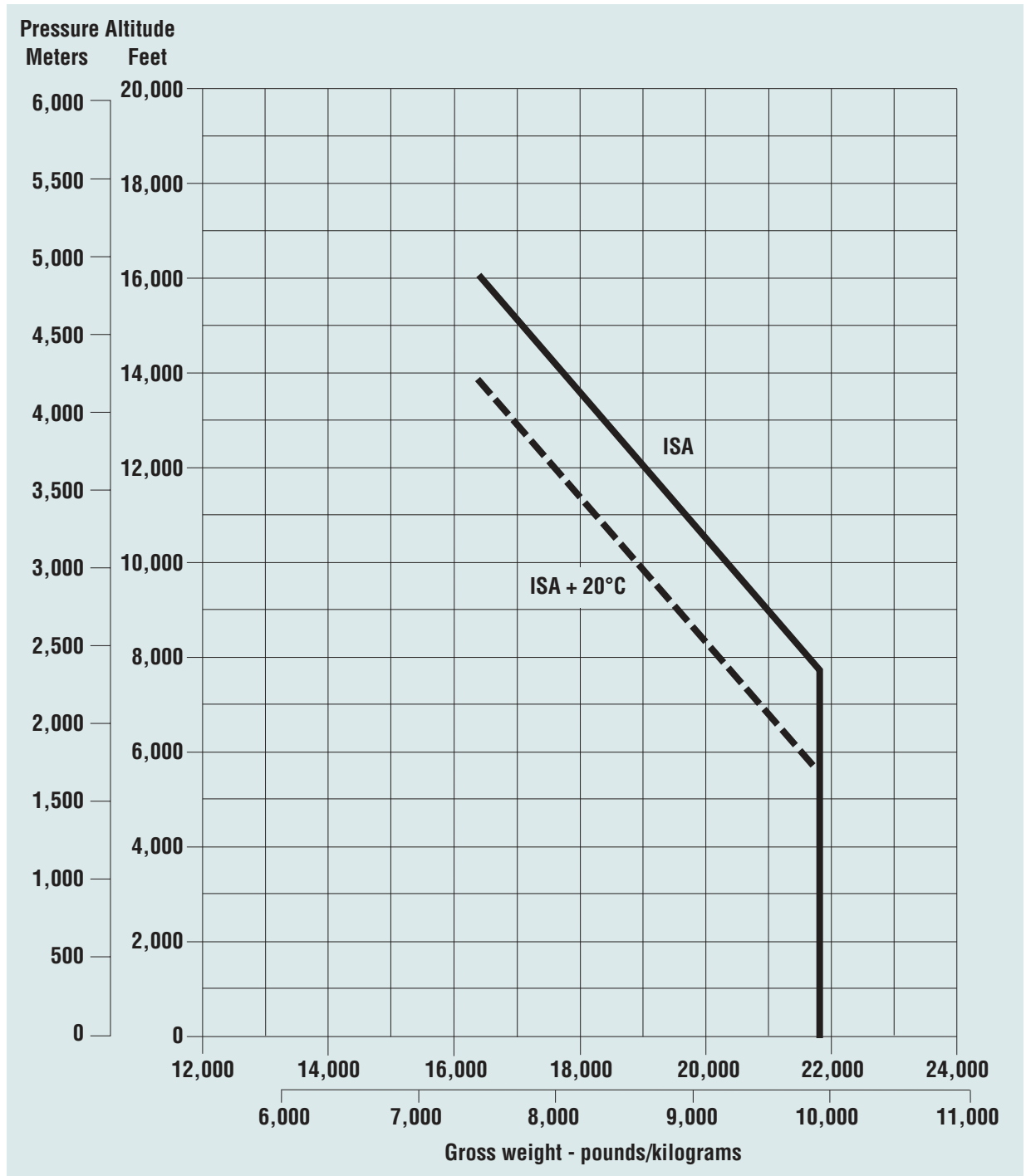




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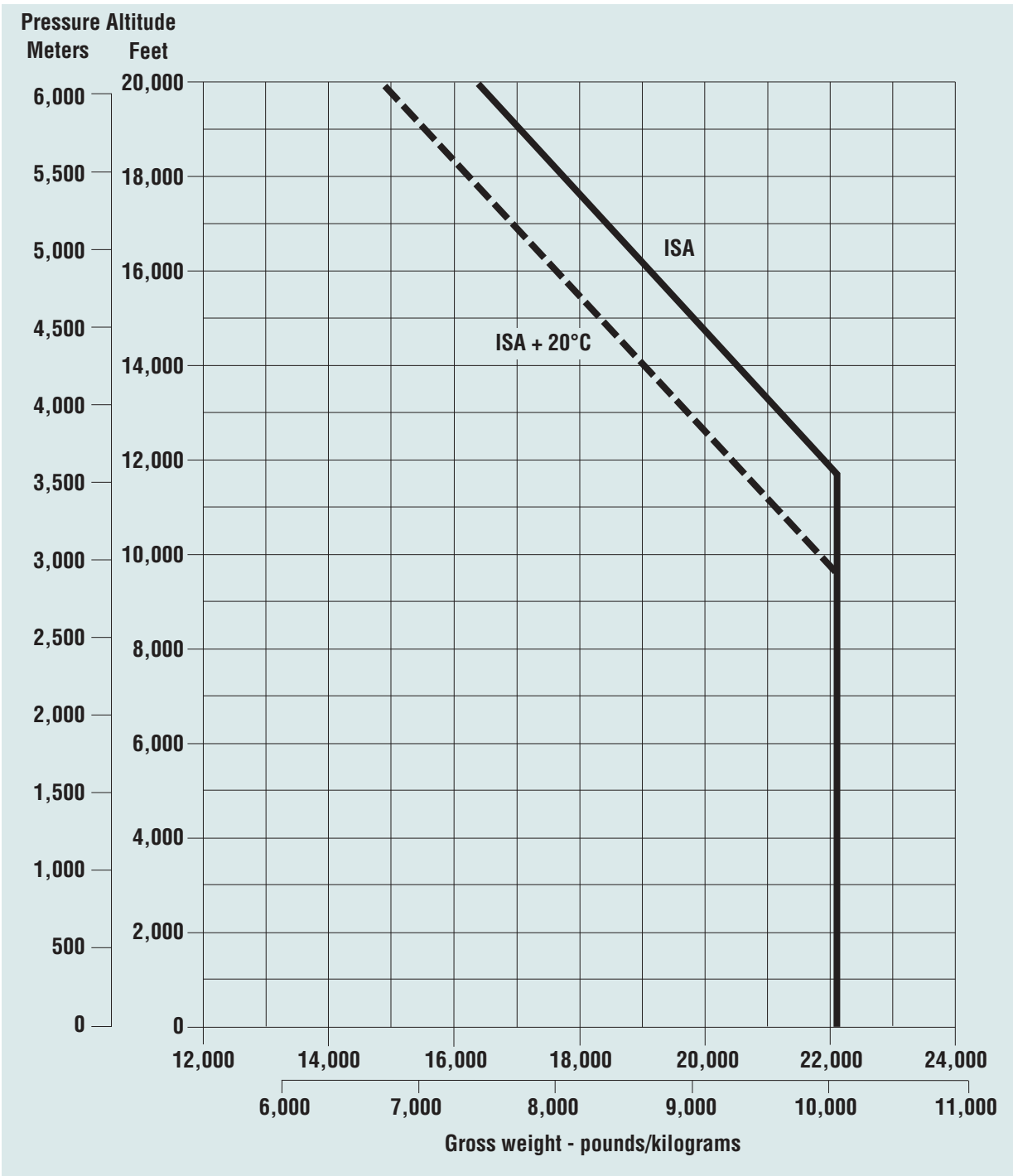
# Hover Ceiling *In Ground Effect*





# Twin Engine Service Ceiling

*IRP, 100 fpm/30.5 mpm Rate of Climb, V<sub>BROC</sub>*



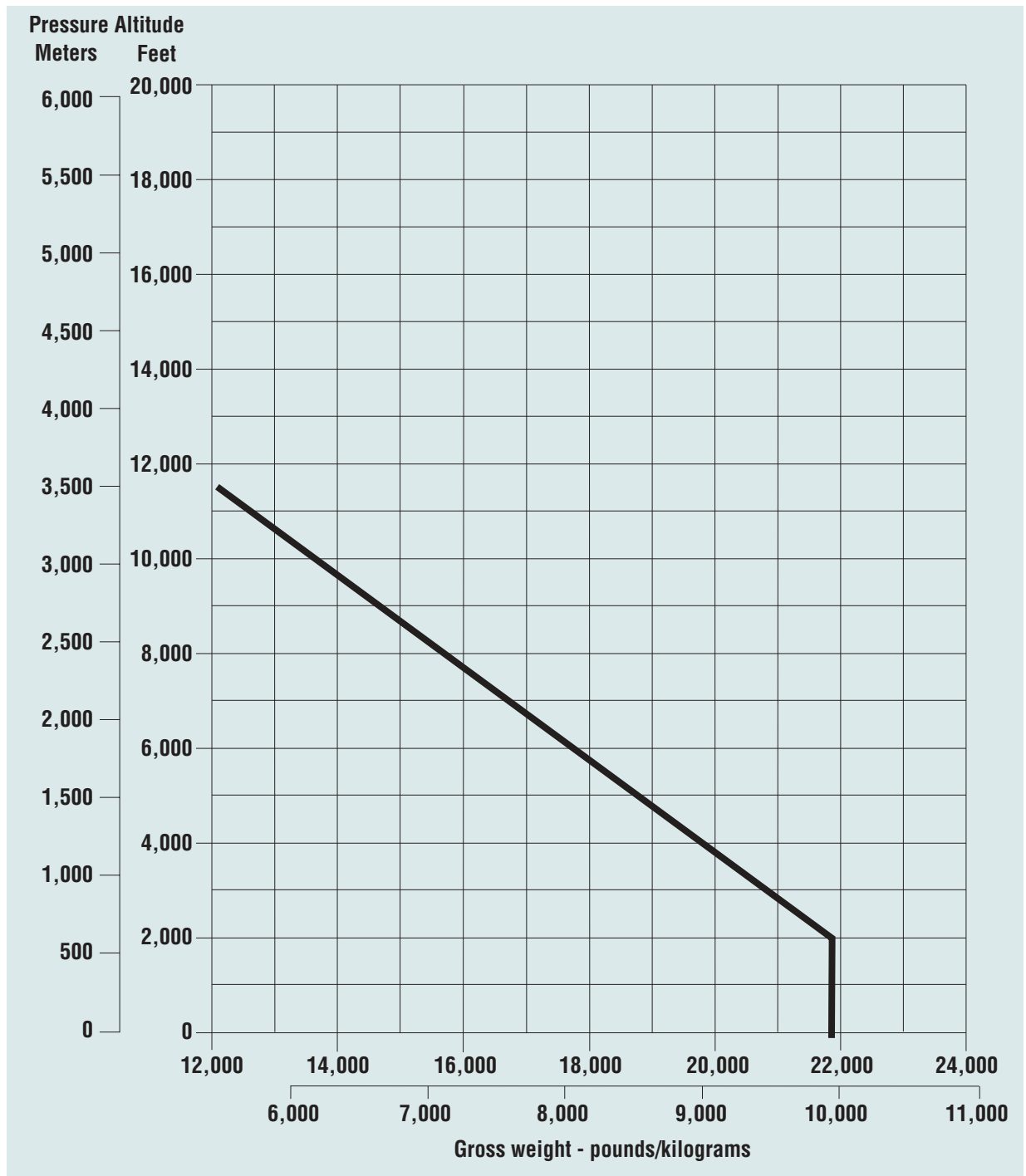




TECHNICAL INFORMATION

# One Engine Inoperative (OEI) Service Ceiling

*IRP, 100 fpm/30.5 mpm Rate of Climb, Standard Day*

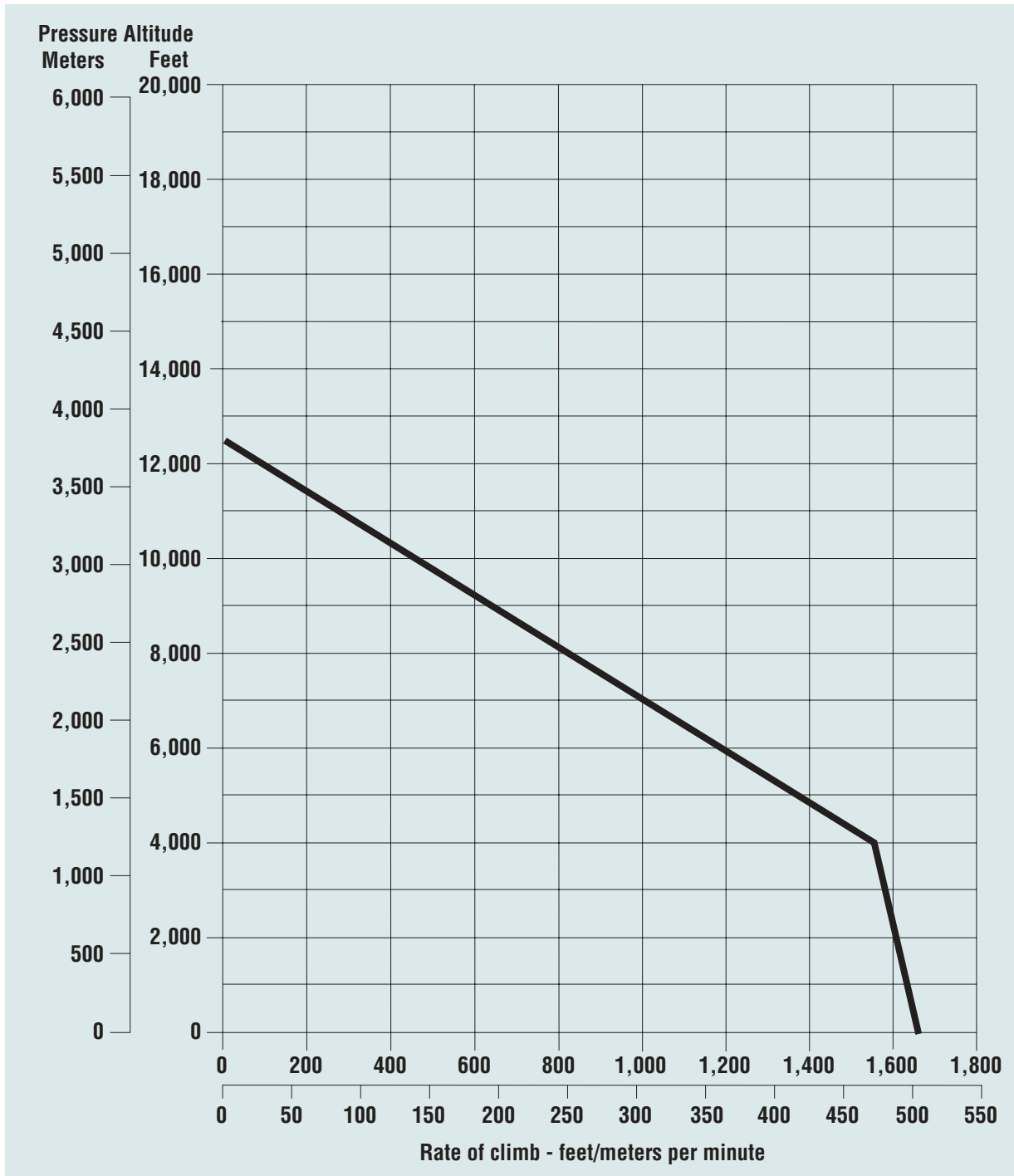


*ASUW mission configuration includes Penguin missile, shown here in stowed position on left extended pylon*



# Best Rate of Climb at IRP

21,884 Pounds/9,927 Kilograms, Standard Day



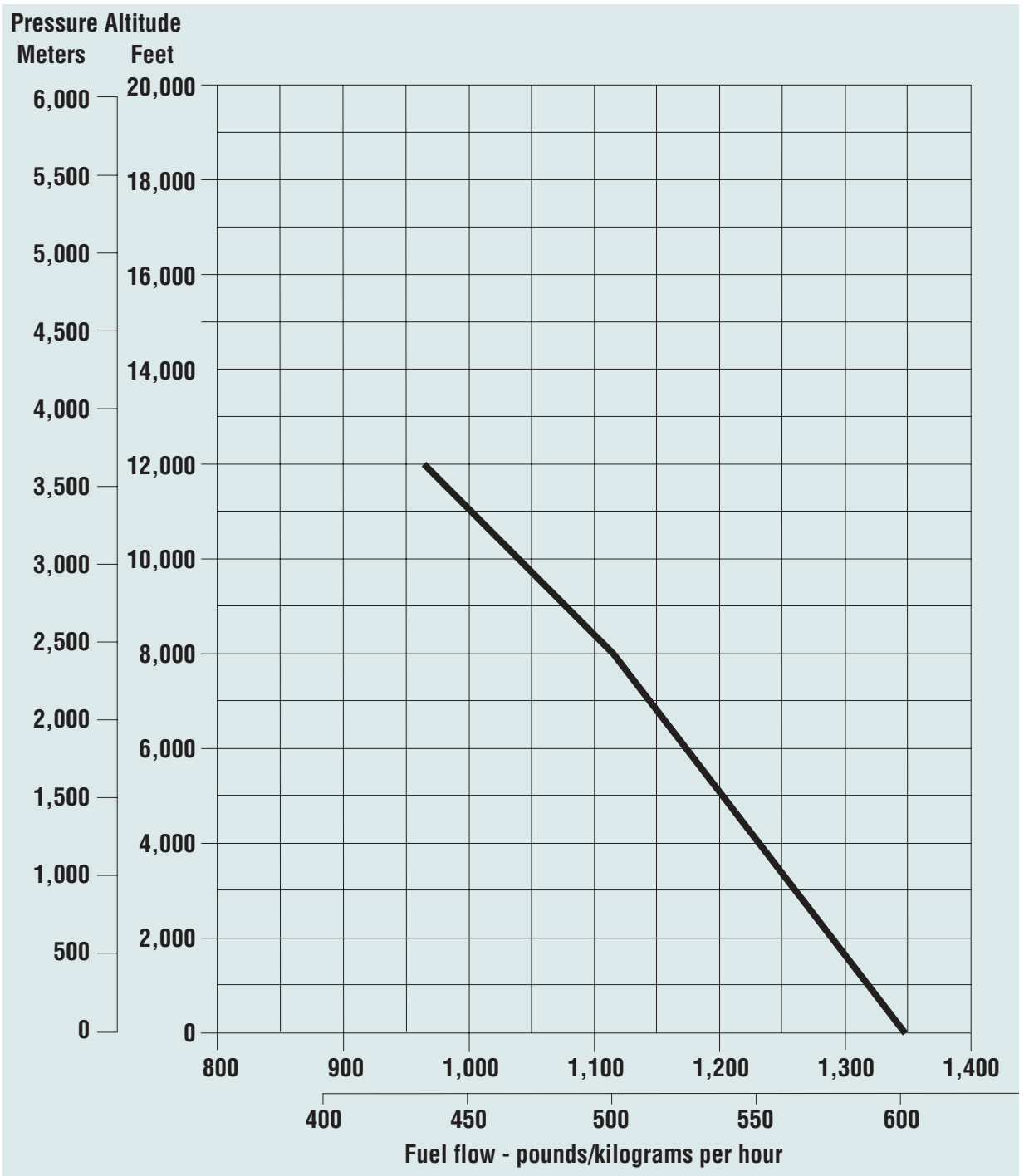
Navies around the world rely on rugged Sikorsky SEA HAWKS for their medium-lift maritime helicopter requirements





TECHNICAL INFORMATION

# Fuel Flow at Maximum Continuous Power ISA + 20°C



Main rotor blades fold to reduce aircraft footprint

# MULTI-MISSION S-70B SEAHAWK

ASW

ASUW

SAR

MEDEVAC

VERTREP

UTILITY



S70B TI JUNE 2001



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