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NAVAIR 00-110AH3-1

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DOD DIR 5200.10

# Standard Aircraft Characteristics

## NAVY MODEL SH-3A AIRCRAFT

(TITLE UNCLASSIFIED)

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1 MAY 1955 IN PART AND ALL ADDENDA THERETO

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PUBLISHED BY DIRECTION OF THE  
COMMANDER OF THE NAVAL AIR SYSTEMS COMMAND

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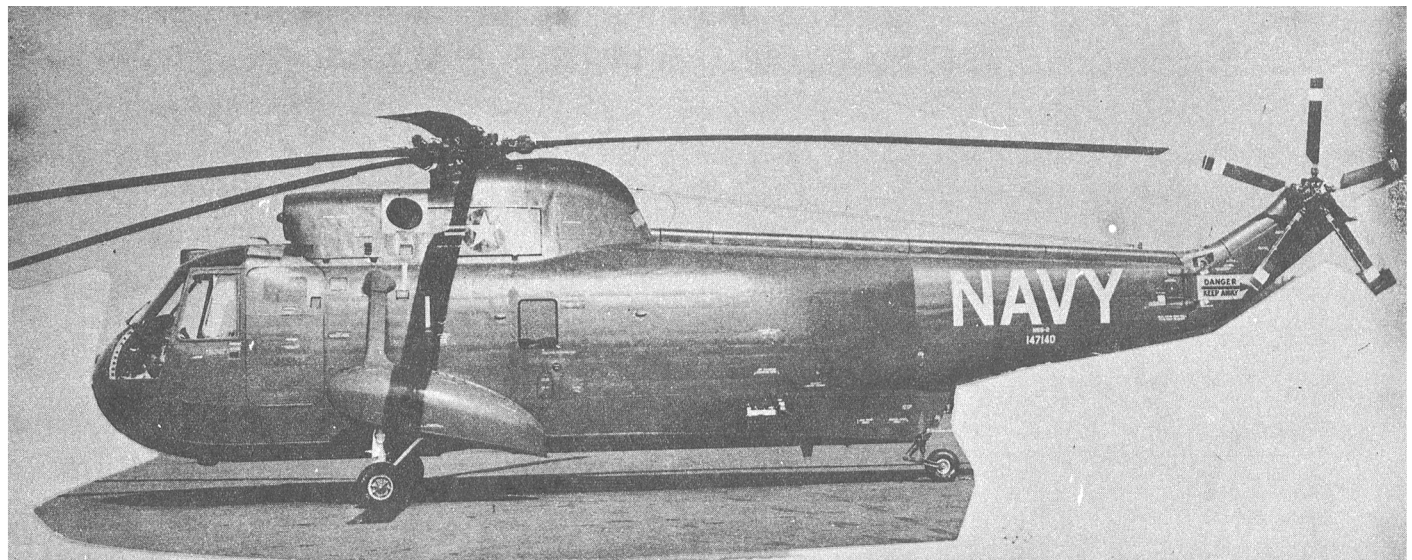
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# STANDARD AIRCRAFT CHARACTERISTICS SH-3A

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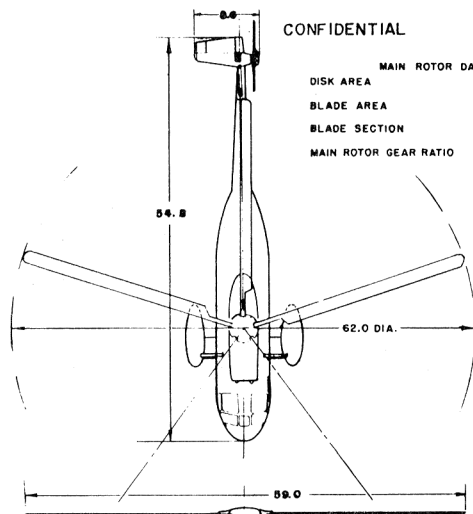
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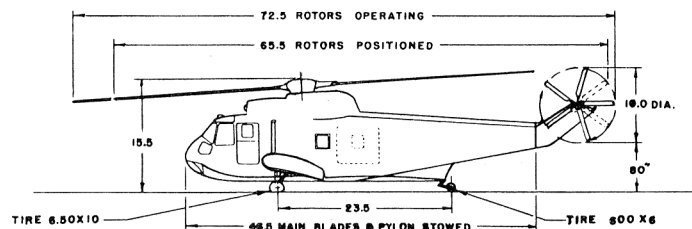
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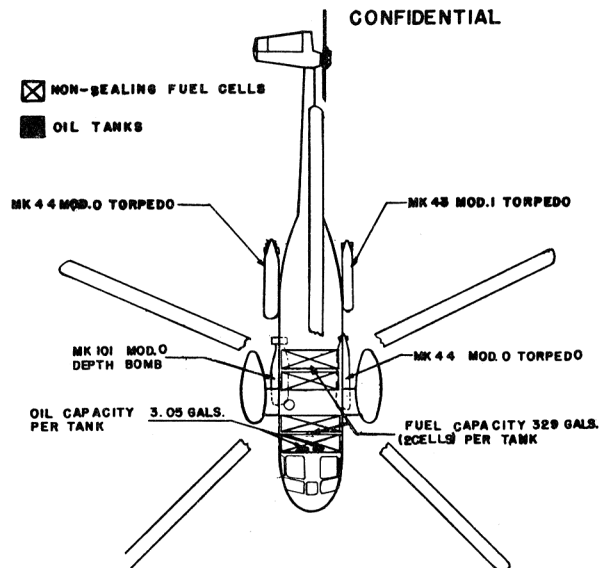


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MAIN ROTOR DATA  
DISK AREA 3019 SQ. FT.  
BLADE AREA 222.5 SQ. FT.  
BLADE SECTION NACA 0012  
MAIN ROTOR GEAR RATIO 96.33:1



DESCRIPTIVE ARRANGEMENT  
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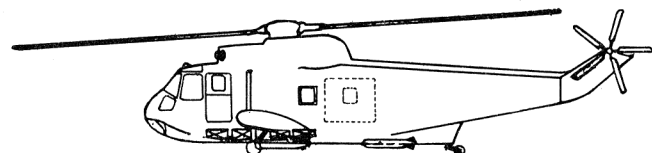
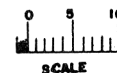
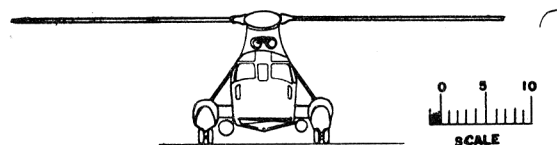
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NON-SEALING FUEL CELLS  
OIL TANKS

MK 44 MOD. 0 TORPEDO MK 43 MOD. 1 TORPEDO

MK 101 MOD. 0 DEPTH BOMB MK 44 MOD. 0 TORPEDO

OIL CAPACITY 3.05 GALS. PER TANK FUEL CAPACITY 320 GALS. (CELLS PER TANK)



ARMAMENT AND TANKAGE  
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### POWER PLANT

NO. & MODEL..... (2) T58-GE-6  
MFR ..... General Electric  
ROTOR GEAR RATIO.....0.0319  
TAIL ROTOR RATIO .....0.0633

### RATINGS

	ESHP	RPM	ALT
MIL.	1050	19,555	SSL
NORM.	900	19,555	SSL

Eng. Spec. No. E-1013  
of 11 April 1957

### ORDNANCE

Four fixed launching stations provide for armament.

Primary mission armament:

2 Torpedoes MK 44, (Mod. 0)

Armament carried in any combination:

4 MK 43 (Mod. 1) Torpedoes  
4 MK 44 (Mod. 0) Torpedoes  
1 MK 101 (Mod. 0) Depth Bomb  
(Forward R.H. Station Only)

Space provisions are made to carry:

4 MK 14 (Mod. 0) Depth Charge  
4 MK 54 (Mod. 1) Air. Depth Bomb

### MISSION AND DESCRIPTION

The primary mission of the helicopter is to detect, identify, track and destroy enemy submarines. It is capable of all weather operation from carriers, cruisers and from other naval and merchant ships which have adequate landing provisions and from land bases.

This helicopter is a twin-engine, single-main-rotor type with one anti-torque tail rotor and a fixed trim surface. All-metal construction is used throughout the aircraft. A large door toward the rear of the cabin and a personnel door toward the front of the cabin provide entrance for the crew. The fuselage of semi-monocoque construction has an amphibian type hull bottom to provide emergency water landing capability. A sponson is provided on the outer end of the landing gear support to increase lateral stability during emergency water landings. The main rotor blades are pretracked and shall be manually foldable in winds up to 40 knots to reduce the overall length for stowage. The tail pylon is also foldable. A rotor brake provides stopping of the rotor blades from hovering RPM to prevent windmilling. Flight controls include hydraulic servo systems for the main and tail rotor. Automatic stabilization equipment is provided and is capable of being engaged or disengaged at any time during flight without disturbance.

Personnel include pilot, co-pilot, sonar operator and relief sonar operator.

### DEVELOPMENT

First Flight ..... April 1959  
Service Use ..... March 1961

### DIMENSIONS

DISC AREA ..... 3019 sq. ft.  
BLADE AREA ..... 222.5 sq. ft.  
NO. OF BLADES (MAIN) ..... 5  
MAIN ROTOR DIA. .... 62' - 0"  
LENGTH (BLADES FOLDED) .... 56' - 9 1/2"  
LENGTH (BLADE & PYLON FOLD) . 46' - 6"  
LENGTH (BLADES ROTATING).... 72' - 6"  
HEIGHT (BLADES FOLDED)..... 16' - 8 1/2"  
TREAD ..... 13' - 0"  
SPAN (BLADES FOLDED)..... 16' - 0"  
STABILIZER AREA ..... 21 sq. ft.

### WEIGHTS

LOADING	LBS.	L.F.
EMPTY .....	10814 .....	
BASIC .....	11196 .....	
DESIGN G.W.....	17196 .....	2.36
OVERLOAD G.W.....	19000 .....	2.14

All weights are actual

### FUEL AND OIL

GAL.	NO. TANKS	LOCATION
658	2	Internal
Fuel Grade..... JP-4		
Fuel Spec..... MIL-F-5624		

### OIL

Capacity (Gal.)..... 6.1  
Fuel Spec. .... MIL-C-7808

### ELECTRONICS

RADIO SET (UHF)..... AN/ARC-52  
RADIO SET (HF)..... AN/ARC-39  
INTERPHONE, TRANS. AMP. .... AN/AIC-4A  
RADAR IDENTIFICATION SET .... AN/APX-6B  
CODER GROUP ..... AN/APA-89  
LOW FREQUENCY ADF..... AN/ARN-59  
RADIO SET..... AN/ARN-21A  
RADAR ALTIMETER ..... AN/APN-117  
SONAR ..... AN/AQS-10  
RADAR NAVIGATION SET ..... AN/AFN-130  
NAVIGATION COMPUTER GROUP ... AN/ASA-13A

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## PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION		(1) ASW SEARCH & ATTACK 2 MK-44	(2) ASW ATTACK 4 MK-44			
TAKE-OFF WEIGHT	lb.	17196	18088			
Fuel (JP-4)	lb.	4425	4425			
Payload	lb.	882	1764			
Disc loading	lb./sq.ft.	5.69	6.00			
Vertical rate of climb at S.L.	(A) fpm.	680	320			
Absolute hovering ceiling	(A) ft.	5200	2900			
Max. rate of climb at S.L.	(B) fpm.	1250	1280			
Service ceiling (100 fpm)	(B) ft.	12100	9900			
Max. Speed/Altitude	(B) kn.	133/S.L.	130/S.L.			
Min./ Maximum Speed at S.L.	(A) (C) kn./kn.	38/98	52/90			
Combat Range	n.mi.	500	483			
Average cruising speed	kn.	120	120			
Cruising altitude	ft.	S.L.	S.L.			
Max. Endurance	hr.	—	4.90			
Average cruising speed/Alt	kn./ft.	—	61/S.L.			
ASW Endurance	hr.	4.35	—			
Cruising speed	kn.	100	—			

## NOTES

- (A) MILITARY POWER (Transmission Limit 2000 HP)  
 (B) NORMAL POWER  
 (C) ONE ENGINE INOPERATIVE

PERFORMANCE BASIS: Calculation, contractor flight test data and NATESTCEN  
 NPE flight test data

ENDURANCE is based on engine specification fuel consumption data  
 increased by 5%

MAXIMUM ENDURANCE MISSION

WARM UP AND TAKE-OFF: 3 min at sea level at  
 normal rated power  
 CRUISE: at sea level at speed for test endurance  
 RESERVE: 10% of initial fuel load

ASW SEARCH AND ATTACK MISSION

WARM-UP AND TAKE-OFF: 3 minutes at sea level  
 at Normal Rated Power  
 CRUISE AND HOVER: Cruise and Hover alternately  
 Cruise at 100 knots 50% of time - Acceleration,  
 Deceleration, and Hover 50% of time - ASW  
 Endurance equals Cruise, Acceleration,  
 Deceleration, and Hover time  
 RESERVE: 10% of initial fuel load

COMBAT RANGE MISSION

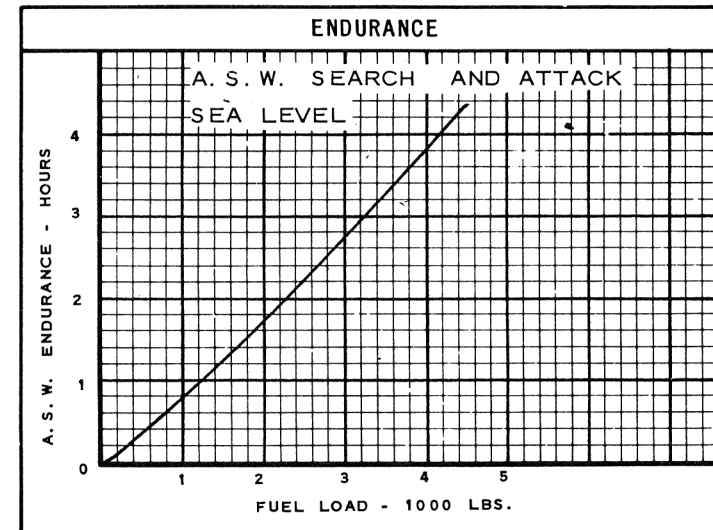
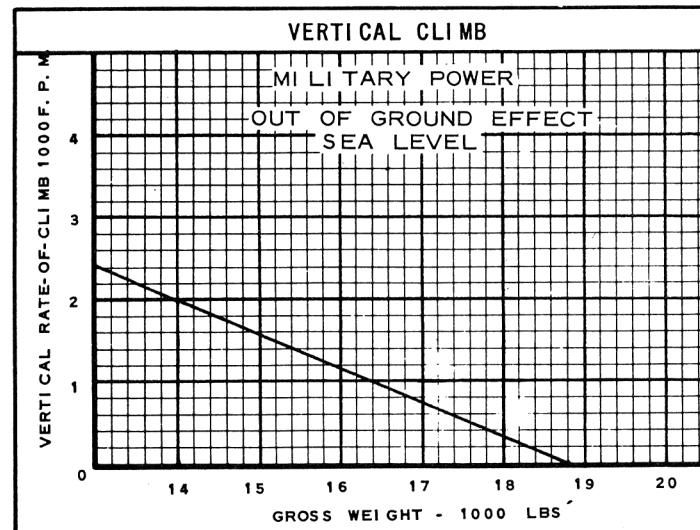
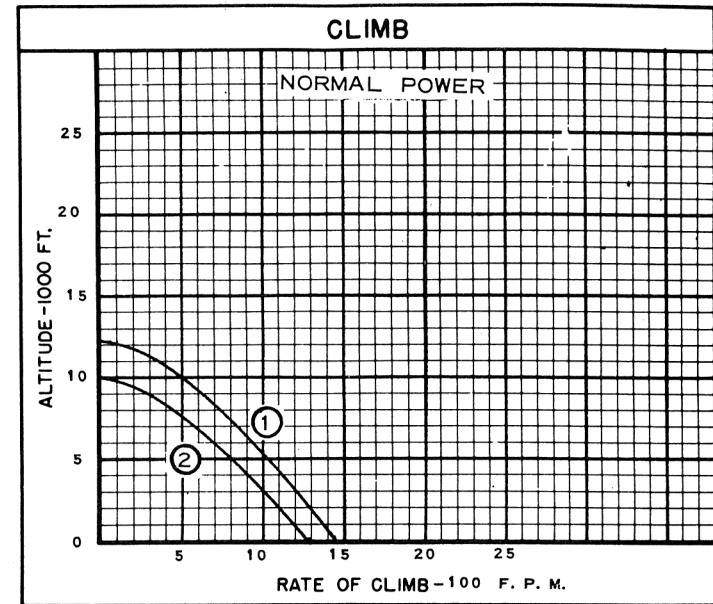
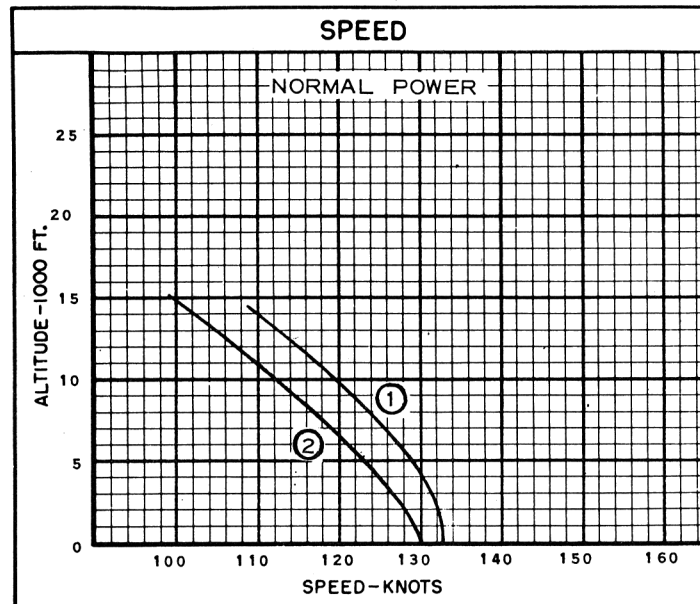
WARM UP AND TAKE-OFF: 3 min at sea level  
 at normal rated power  
 CRUISE: At sea level at speed for best range  
 RESERVE: 10% of initial fuel load

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○ LOADING CONDITION COLUMN NUMBER

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