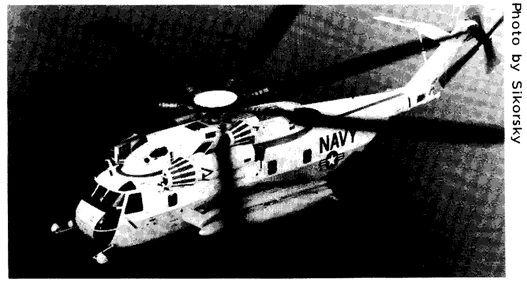


Photo by Sikorsky

The CH-53E prototype of the mine countermeasures version flies during testing by Sikorsky.

Illustration Courtesy Sikorsky

In an artist's concept, the MH-53E Super Stallion is seen in flight during minesweeping operations. Note enlarged fuel sponsons adding to on-station time.

The MH-53E Minesweeping Super Stallion

Now in the development stage by Sikorsky, the MH-53E will be a reconfigured version of the CH-53E *Super Stallion* presently being introduced into the Marine Corps. The prototype, seen in cutaway at right without enlarged fuel sponsons, made its first flight on December 23 last year. It is now undergoing evaluation and testing at the Naval Coastal Systems Center in Panama City, Fla.

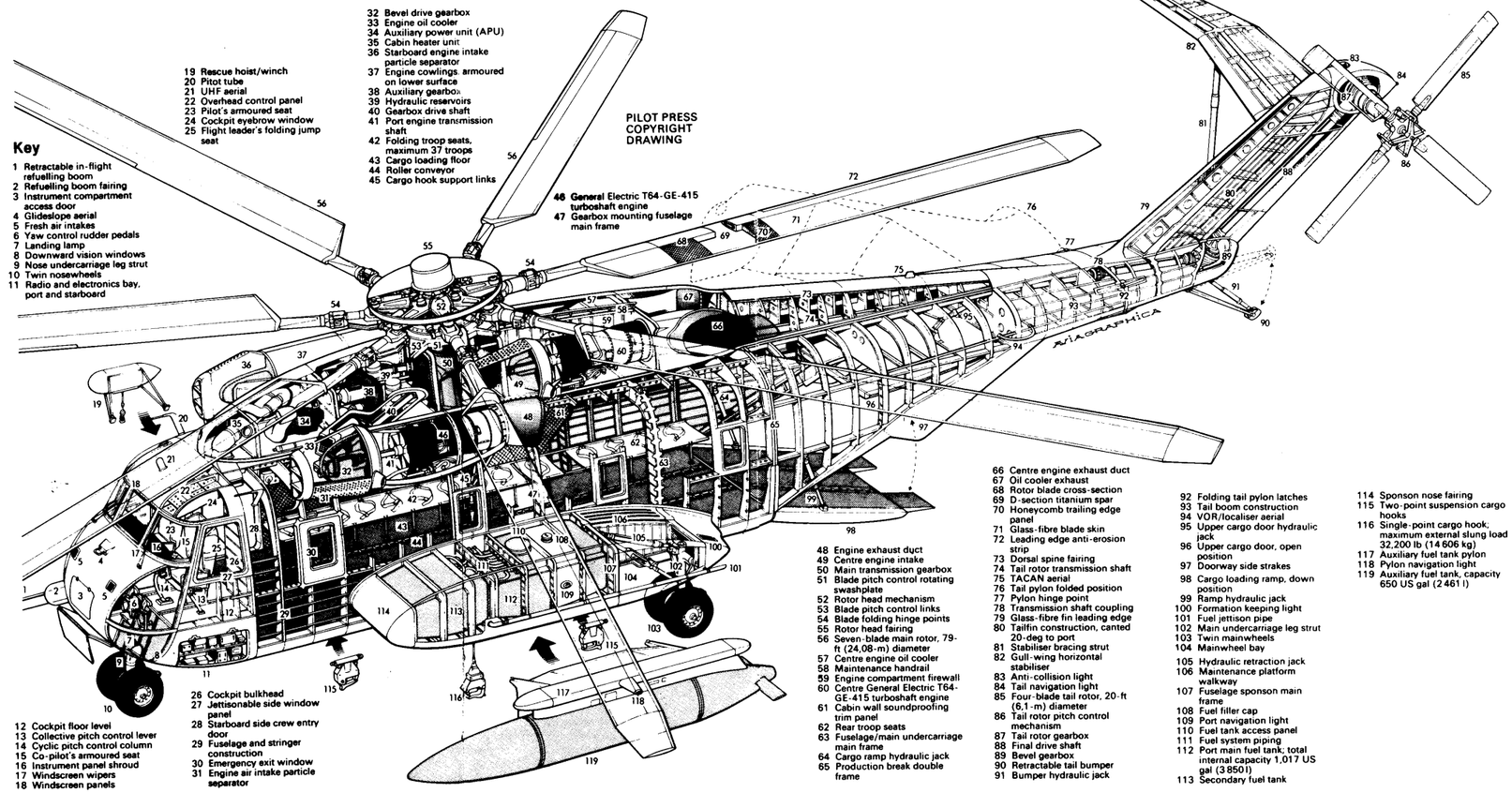
The MH-53E's triple turbine engines will provide greater lift for mine countermeasures operations while enlarged sponsons will carry additional fuel to allow up to six hours of time on station. The new configuration will also feature the airborne mine countermeasures coupled, dual digital automatic flight control system. The system consists of two digital computers, a cockpit control box, six accelerometers, and five position sensors. It is 42 percent lighter, occupies 54 percent less volume and consumes 41 percent less power than the older analog system. There is no organizational level maintenance required. The computers continually cross-check one another and disable any potential false inputs to the automatic flight control system servos. If one computer fails, the other will automatically double its output, eliminating any degradation in automatic flight control performance.

Also part of the new mine countermeasures capability is a dedicated AMCM hydraulic system, improved AMCM navigation, 30,000-pound tension tow boom, better mirrors and better crew environment.

The MH-53E *Super Stallion* is capable of inflight refueling and can be refueled at hover. It is also shipboard compatible with amphibious ships serving as airborne mine countermeasures platforms. The aircraft will sweep waterways for mines by flying above the surface, towing electronic or magnetic sweeping gear as well as gear for neutralizing moored mines.

The Navy anticipates a requirement for 55 of these helicopters.

Cutaway illustration courtesy of Air International, March 1981.



Key

1 Retractable in-flight refuelling boom
2 Refuelling boom fairing
3 Instrument compartment access door
4 Glideslope aerial
5 Fresh air intakes
6 Yaw control rudder pedals
7 Landing lamp
8 Downward vision windows
9 Nose undercarriage leg strut
10 Twin nosewheels
11 Radio and electronics bay, port and starboard
12 Cockpit floor level
13 Collective pitch control lever
14 Cyclic pitch control column
15 Co-pilot's armoured seat
16 Instrument panel shroud
17 Windscreen wipers
18 Windscreen panels
19 Rescue hoist/winch
20 Pitot tube
21 UHF aerial
22 Overhead control panel
23 Pilot's armoured seat
24 Cockpit eyebrow window
25 Flight leader's folding jump seat
26 Cockpit bulkhead
27 Jettisonable side window panel
28 Starboard side crew entry door
29 Fuselage and stringer construction
30 Emergency exit window
31 Engine air intake particle separator
32 Bevel drive gearbox
33 Engine oil cooler
34 Auxiliary power unit (APU)
35 Cabin heater unit
36 Starboard engine intake particle separator
37 Engine cowlings, armoured on lower surface
38 Auxiliary gearbox
39 Hydraulic reservoirs
40 Gearbox drive shaft
41 Port engine transmission shaft
42 Folding troop seats, maximum 37 troops
43 Cargo loading floor
44 Roller conveyor
45 Cargo hook support links
46 General Electric T64-GE-415 turboshaft engine
47 Gearbox mounting fuselage main frame
48 Engine exhaust duct
49 Centre engine intake
50 Main transmission gearbox
51 Blade pitch control rotating swashplate
52 Rotor head mechanism
53 Blade pitch control links
54 Blade folding hinge points
55 Rotor head fairing
56 Seven-blade main rotor, 79-ft (24,08-m) diameter
57 Centre engine oil cooler
58 Maintenance handrail
59 Engine compartment firewall
60 Centre General Electric T64-GE-415 turboshaft engine
61 Cabin wall soundproofing trim panel
62 Rear troop seats
63 Fuselage/main undercarriage main frame
64 Cargo ramp hydraulic jack
65 Production break double frame
66 Centre engine exhaust duct
67 Oil cooler exhaust
68 Rotor blade cross-section
69 D-section titanium spar
70 Honeycomb trailing edge panel
71 Glass-fibre blade skin
72 Leading edge anti-erosion strip
73 Dorsal spine fairing
74 Tail rotor transmission shaft
75 TACAN aerial
76 Tail pylon folded position
77 Pylon hinge point
78 Transmission shaft coupling
79 Glass-fibre fin leading edge
80 Tailfin construction, canted 20-deg to port
81 Stabiliser bracing strut
82 Gull-wing horizontal stabiliser
83 Anti-collision light
84 Tail navigation light
85 Four-blade tail rotor, 20-ft (6,1-m) diameter
86 Tail rotor pitch control mechanism
87 Tail rotor gearbox
88 Final drive shaft
89 Bevel gearbox
90 Retractable tail bumper
91 Bumper hydraulic jack
92 Folding tail pylon latches
93 Tail boom construction
94 VOR/localiser aerial
95 Upper cargo door hydraulic jack
96 Upper cargo door, open position
97 Doorway side strakes
98 Cargo loading ramp, down position
99 Ramp hydraulic jack
100 Formation keeping light
101 Fuel jettison pipe
102 Main undercarriage leg strut
103 Twin mainwheels
104 Mainwheel bay
105 Hydraulic retraction jack
106 Maintenance platform walkway
107 Fuselage sponson main frame
108 Fuel filler cap
109 Port navigation light
110 Fuel tank access panel
111 Fuel system piping
112 Port main fuel tank; total internal capacity 1,017 US gal (3 850 l)
113 Secondary fuel tank
114 Sponson nose fairing
115 Two-point suspension cargo hooks
116 Single-point cargo hook; maximum external slung load 32,200 lb (14 606 kg)
117 Auxiliary fuel tank pylon
118 Pylon navigation light
119 Auxiliary fuel tank, capacity 650 US gal (2 461 l)