NORTHROP GRUMMAN
E-2D ADVANCED HAWKEYE
AIRBORNE EARLY WARNING COMMAND AND CONTROL

FLIGHT INTERNATIONAL

This illustration depicts the baseline E-2D Advanced Hawkeye airborne early warning command and control aircraft – customer specific equipment/optional items are indicated accordingly.

16 Rear compartment housing avionics, flying controls and hydraulic systems – lavatory or galley optional
17 Semi-monocoque fuselage construction, incorporating six (built-up) I-section primary longerons – aluminium-alloy
19 Cabin window and blind – three-off
20 Combat information centre officer's (CICO) seat and PSE
21 Radar operator's (RO) seat and PSE
22 Wing-to-fuselage aerodynamic fairing – aluminium alloy construction
23 RF cable fairing
24 Rotodome-pylon (revised) aerodynamic fairing
25 Rotodome forward-section housing UHF and IFF antenna arrays – composite construction
26 Rotodome centre-section housing UHF upper transmission line, IFF and satcom systems
27 Access cover
28 Rotodome aft-section – composite
29 Pylon-to wing attachment legs (forward/central) with I-section beam and aerodynamic ribs

Fuel system
Total capacity 6,904 litres (1,824 USgal)
F1 Fuel dump pipe
F2 Fuel vent pipe
F3 Centre wing section fuel tank – port and starboard of wing centreline rib
F4 Fuel balance system feed lines
F5 Fuel (aft) boost pumps – two-off
F6 Fuel balance system return lines
F7 Fuel tank overflow/overboard line
F8 Overwing filler – two-off
F9 Pressure refuel/defuel manifold and contents panel – located on the inboard surface of starboard engine nacelle

Powerplant
P1 Engine core exhaust nozzle
P2 Engine fire suppression bottle (one per engine) – Halon
P3 Optional auxiliary power unit – located in lower aft starboard fairing
P4 Rolls-Royce T56-A-427A turboprop engine rated at 5,100shp with 5,450shp using automatic power reserve
P5 Oil tank
P6 Engine-to-gearbox driveshaft
P7 Oil heat exchanger exhaust
P8 Engine and generator oil heat exchanger
P9 Oil heat exchanger air intake
P10 Engine air-intake with bleed-air anti-icing
P11 Engine reduction gearbox
P12 Propeller shaft
P13 NP2000 eight-bladed digitally controlled propeller (composite/metal spar blade) with electric anti-icing – Hamilton Sundstrand
P14 Propeller spinner

Undercarriage and hydraulics
Twin (independent) hydraulic systems operating at 207bar (3,000lb/in²)
U1 Arrestor gear shoe
U2 Arrestor gear arm
U3 Tail-skid – pneumatic
U4 Rudder (outboard) actuator
U5 Rudder (inboard) actuator
U6 Arrestor gear dashpots
U7 Hydraulic system reservoir, filters and accumulator
U8 Forward retracting oleo pneumatic main landing gear (MLG) – leg rotates through 90° to lie flat in the gear bay
U9 Scissor links
U10 Leg rotation linkage
U11 Drag-brace and down lock
U12 Retraction actuator
U13 MLG bay (rear) doors – two per bay
U14 MLG bay (forward) doors – two per bay
U15 MLG bay
U16 Rearward retracting oleo pneumatic fully steering nose landing gear (NLG) – via rudder pedals and steering tiller
U17 Catapult strap attachment arm
U18 Steering unit
U19 Drag strut
U20 NLG side doors – both sides
U21 NLG forward door
U22 Steering tiller

Structure and general
1 Two-spar fully cantilevered single-piece (outboard) fin with metallic primary structure and composite skins for low radar reflection
2 Two-spar fully cantilevered single-piece (inboard) fin with metallic primary structure and composite skins for low radar reflection
3 Inboard fin attachment points
4 Single-piece three-spar tailplane – aluminium alloy
5 Wing-stow jury-strut spigot
6 Port side inboard fin – fixed position with no rudder surfaces
7 Tail-skid fairing
8 Rear fuselage tie-down fittings – both sides
9 Arrestor gear attachment bulkhead – machined aluminium alloy
10 Rudder controls conversion quadrant
11 Pressure bulkhead – built-up aluminium alloy
12 Rotodome-pylon rear support fairing
13 Flying controls (rear cabin) conversion quadrant
14 Pylon leg-to-fuselage (rear) attachment fitting
15 Rear compartment access door
18 Air control officer's (ACO) swivelling seat with armrests and integral parachute/survival pack ensemble (PSE) – ergonomic workstation-seats optional
30 Pylon-to-wing (forward/central) attachment fittings – two-off
31 Pylon-to-wing (forward/outboard) legs – two-off
32 Pylon-to-wing (forward/outboard) attachment fittings
33 Three-spar fully cantilevered (wet) centre-wing section with built-up and machined spars, ribs and skins
34 Cabin upper/forward capping bulkhead
35 Wing-to-fuselage (rear) attachment fitting – port and starboard
36 Co-operative engagement capability (CEC) end-fire array antenna fairing
37 Centre-wing section outboard hinge rib – machined aluminium alloy
38 Wingfold hinge-post
39 Outboard-wing section inboard hinge rib – machined aluminium alloy
40 Wingfold actuator fitting
41 Engine rear nacelle
42 Wingfold actuator – hydraulically actuated
43 Outboard-wing (partial span) centre spar – machined and built-up aluminium alloy
44 Three-spar (partial span centre spar) fully cantilevered outboard-wing section with built-up and machined spars, ribs and skins
45 Wingtip – composite
46 Wing-stow jury-strut – fully automated (hydraulic) actuation
47 Jury-strut bay
48 Rear spar
49 Forward spar
50 Detachable leading edge sections
51 Engine truss – steel
52 Wingfold warning flag – retracted when wing is locked in flight position
53 Wingfold (hydraulic) locking actuators – four per wing
54 Wing-to-fuselage (forward) attachment fitting – port and starboard
55 Air cycle and liquid cooling heat exchanger intake
56 Crew entry door with integral steps
57 Vapour-cycle cooling system primary heat-exchanger fairing
58 Cockpit upper window/escape hatch (both sides) – gold laminated EMI filter
59 Co-pilot's seat with headrest and PSE
60 Centre pedestal with engine, trim and auto-pilot controls
61 Cockpit bulged side windows – gold laminated EMI filter
62 Nose section upper structure
63 Upward-hingeing di-electric nose/radome
64 Side consoles with comms, lighting, ECS controls, brake system and map stowage
65 Forward pressure bulkhead – built-up aluminium alloy
66 Forward fuselage tie-down fittings – both sides
67 Double-wall cockpit structure – built-up aluminium alloy
68 Cabin/cockpit bulkhead and door

Air conditioning and anti-icing systems
A1 Fin leading-edge anti-icing boot – cyclic type
A2 Tailplane leading-edge anti-icing boot – cyclic type
A3 Overhead oxygen panel
A4 Air-conditioner duct assembly
A5 Radar pressure and cooling subsystem (RPCS) duct assembly
A6 Crew ECS sand particle separator system – optional
A7 Air cycle ECS heat exchanger
A8 Vapour cycle system
A9 RPCS
A10 Engine bleed air supply
A11 Propeller leading-edge – electical anti-icing
A12 RPCS heat exchanger
A13 Vapour-cycle heat-exchanger
A14 Wing leading edge (outboard) anti-icing boot – cyclic type
A15 Cockpit conditioned air vent
A16 Side window and windscreen-de-mist vent
A17 On-board oxygen generating system concentrator

Flying controls
C1 Single-piece elevator panel – both sides
C2 Hinge-mounted all-speed rudder tabs – composite
C3 Hinge-mounted all-speed rudders – composite
C4 Rudder conversion quadrant and autopilot controls
C5 Inboard flap track
C6 Inboard "Fowler" type flap – aluminium alloy construction
C7 Flap support trunnion and rollers
C8 Outboard "Fowler" type flap – aluminium alloy construction
C9 Flap actuator
C10 Flap transmission shaft and actuator – interlinked with the aileron to provide aileron droop
C11 Hinge mounted (drooping) aileron – aluminium alloy construction
C12 Aileron actuator – hydraulic
C13 Aileron actuation and droop interlink
C14 Aileron drag brace
C15 Aileron hinge pylon
C16 Aileron droop actuator and link assembly – one per hinge
C17 Flap/aileron droop asymmetry switch
C18 Control wheel/yoke
C19 Adjustable rudder pedals with toe brakes
C20 Rudder pedals control linkage
C21 Elevator and aileron control linkage

Electrical and avionics
E1 Anti-collision strobe light
E2 Position light
E3 Active front-end (AFE) assembly – port and starboard
E4 Upper anti-collision strobe light power supply
E5 Electronic support measures (ESM) aft antenna assembly
E6 ESM antennas – port and starboard
E7 Crash survivable flight incident recorder
E8 HF antenna tuning unit
E9 Fibre channel network switch – two-off
E10 Fixed wire HF antenna
E11 HF antenna unit
E12 Stormscope antenna
E13 UHF Guard antenna
E14 Radar altimeter receiver antenna
E15 VHF/UHF-1/L-band/MIDS XMT antenna
E16 Radar altimeter transmitter antenna
E17 VHF/UHF-6 antenna
E18 CEC end-fire array antenna
E19 ACO workstation – primary air controller/datalink/satcom operator
E20 CICO workstation – mission commander/mission planning
E21 RO workstation – weapons system operator/secondary air controller
E22 Workstation (three-off) with 50cm (20in) active matrix liquid crystal display, keyboard, keypad and trackball
E23 Systems panel with intercom, comms, CEC, display processor and network controls
E24 Rotodome servo-motor – variable speed up to 6rpm
E25 Resolver/rotodome gearbox
E26 Integrated UHF radar/IFF box element
E27 18-channel rotary coupler
E28 IFF beam former networks – two-off
E29 Satcom antenna
E30 Avionics flight management computers – two-off
E31 CEC SDP-S
E32 Mission computer
E33 Main electronic junction box
E34 IFF interrogator
E35 MPDB
E36 Ground power monitor – two-off
E37 MPDB drawers
E38 Remote fuel quantity interface unit
E39 ECS controller
E40 Anti-ice indicator relay
E41 Rate gyro
E42 Battery charger
E43 Emergency generator control unit
E44 Radar receiver and exciter units
E45 Radar processor
E46 Radar transmitter and mission data processor cabinets (two-off) – forward cabinet removed for clarity
E47 Port side avionics rack
E48 Radar processor
E49 Radar processor
E50 Radar auxiliary rack
E51 Cockpit junction box
E52 GPS antenna
E53 Overhead circuit breaker panel and eyebrow panels with engine, ECS, emergency lighting, power and anti-icing controls
E54 Instrument panel with three 43cm (17 in) primary flight displays. The pilot or co-pilot's display panel can be used by a fourth tactical operator, with portable keyboard and pointing device
E55 Control display units – port and starboard
E56 Windscreen wipers – electric
E57 ESM forward antenna assemby
E58 Landing and approach signal lights
E59 ILS glideslope antenna – behind E58
E60 Windscreen temperature control unit – two-off
E61 UHF-5 antenna
E62 Dual channel multifuction air data sensor (port and starboard) with electrical anti-icing
E63 UHF-3 antenna
E64 Centreline forward antennas – marker beacon/UHF-4/MIDS/TACAN/VHF/UHF2/ACLS/SINS/IFF transponder and EECM
E65 Electric generator – 170/255KVA
E66 Anti-jamming/MIDS/L-band UHF antenna
E67 Anti-collision strobe/navigation light
E68 Static discharge wick
E69 ESM processor
F10 Wet outer wing tanks – optional
F11 Above cockpit aerial refuelling probe – optional

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