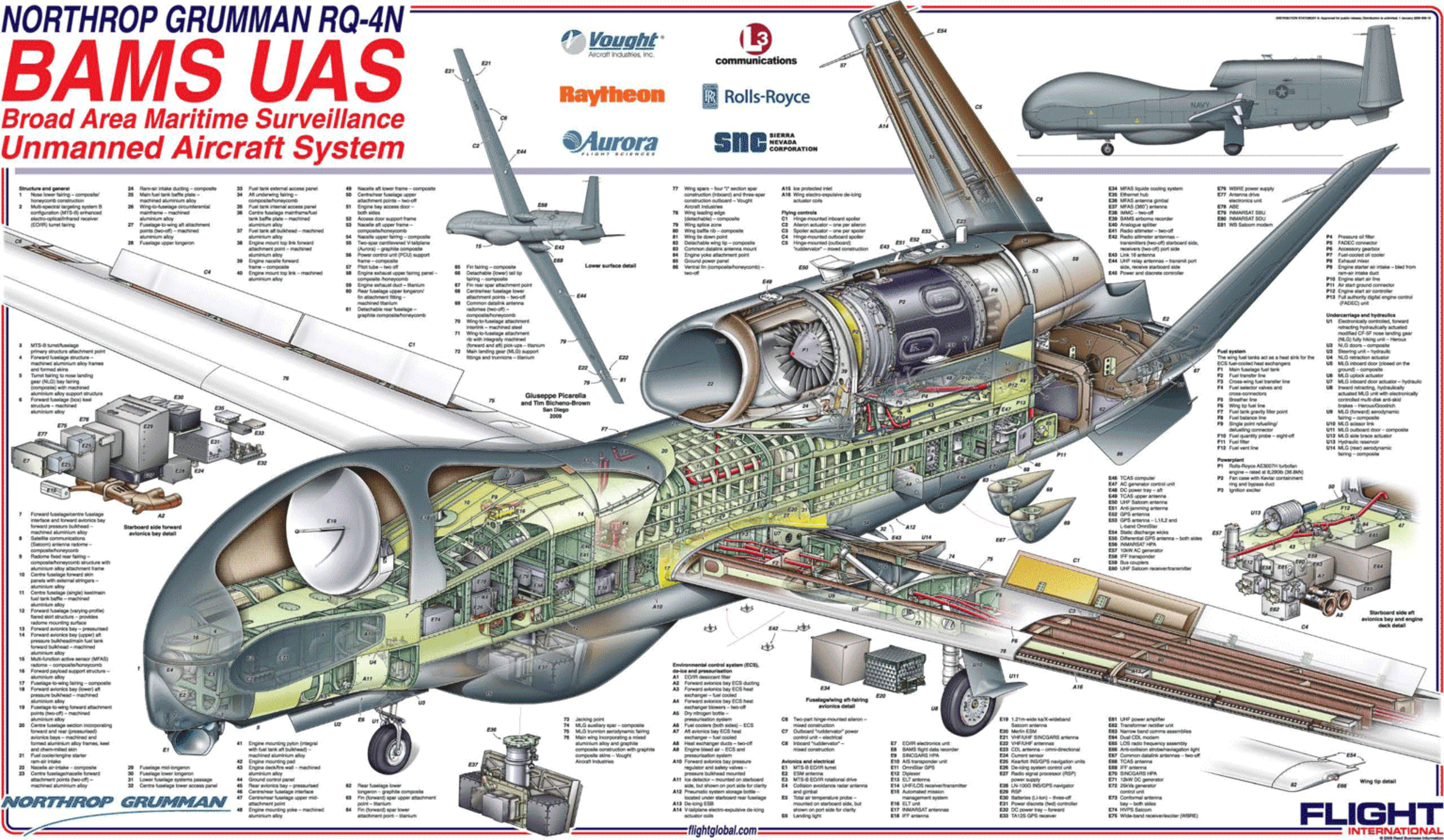
NORTHROP GRUMMAN RQ-4N
BAMS UAS
Broad Area Maritime Surveillance Unmanned Aircraft System

Vought Aircraft Industries, Inc. · L3 communications · Raytheon · Rolls-Royce · Aurora Flight Sciences · SNC Sierra Nevada Corporation



Structure and general

1 Nose lower fairing – composite/honeycomb construction
2 Multi-spectral targeting system B configuration (MTS-B) enhanced electro-optical/infrared receiver (EO/IR) turret fairing
3 MTS-B turret/fuselage primary structure attachment point
4 Forward fuselage structure – machined aluminium alloy frames and formed skins
5 Turret fairing to nose landing gear (NLG) bay fairing (composite) with machined aluminium alloy support structure
6 Forward fuselage (box) keel structure – machined aluminium alloy
7 Forward fuselage/centre fuselage interface and forward avionics bay forward pressure bulkhead – machined aluminium alloy
8 Satellite communications (Satcom) antenna radome – composite/honeycomb
9 Radome fixed rear fairing – composite/honeycomb structure with aluminium alloy attachment frame
10 Centre fuselage forward skin panels with external stringers – aluminium alloy
11 Centre fuselage (single) keel/main fuel tank baffle – machined aluminium alloy
12 Forward fuselage (varying-profile) flared skirt structure – provides radome mounting surface
13 Forward avionics bay – pressurised
14 Forward avionics bay (upper) aft pressure bulkhead/main fuel tank forward bulkhead – machined aluminium alloy
15 Multi-function active sensor (MFAS) radome – composite/honeycomb
16 Forward payload support structure – aluminium alloy
17 Fuselage-to-wing fairing – composite
18 Forward avionics bay (lower) aft pressure bulkhead – machined aluminium alloy
19 Fuselage-to-wing forward attachment points (two-off) – machined aluminium alloy
20 Centre fuselage section incorporating forward and rear (pressurised) avionics bays – machined and formed aluminium alloy frames, keel and chem-milled skin
21 Fuel cooler/engine starter ram-air intake
22 Nacelle air-intake – composite
23 Centre fuselage/nacelle forward attachment points (two-off) – machined aluminium alloy
24 Ram-air intake ducting – composite
25 Main fuel tank baffle plate – machined aluminium alloy
26 Wing-to-fuselage circumferential mainframe – machined aluminium alloy
27 Fuselage-to-wing aft attachment points (two-off) – machined aluminium alloy
28 Fuselage upper longeron
29 Fuselage mid-longeron
30 Fuselage lower longeron
31 Lower fuselage systems passage
32 Centre fuselage lower access panel
33 Fuel tank external access panel
34 Aft underwing fairing – composite/honeycomb
35 Fuel tank internal access panel
36 Centre fuselage mainframe/fuel tank baffle plate – machined aluminium alloy
37 Fuel tank aft bulkhead – machined aluminium alloy
38 Engine mount top link forward attachment point – machined aluminium alloy
39 Engine nacelle forward frame – composite
40 Engine mount top link – machined aluminium alloy
41 Engine mounting pylon (integral with fuel tank aft bulkhead) – machined aluminium alloy
42 Engine mounting pad
43 Engine deck/fire wall – machined aluminium alloy
44 Ground control panel
45 Rear avionics bay – pressurised
46 Centre/rear fuselage interface
47 Centre/rear fuselage upper mid-attachment point
48 Engine mounting yoke – machined aluminium alloy
49 Nacelle aft lower frame – composite
50 Centre/rear fuselage upper attachment points – two-off
51 Engine bay access door – both sides
52 Access door support frame
53 Nacelle aft upper frame – composite/honeycomb
54 Nacelle upper fairing – composite
55 Two-spar cantilevered V-tailplane (Aurora) – graphite composite
56 Power control unit (PCU) support frame – composite
57 Pitot tube – two off
58 Engine exhaust upper fairing panel – composite /honeycomb
59 Engine exhaust duct – titanium
60 Rear fuselage upper longeron/fin attachment fitting – machined titanium
61 Detachable rear fuselage – graphite composite/honeycomb
62 Rear fuselage lower longeron – graphite composite
63 Fin (forward) spar upper attachment point – titanium
64 Fin (forward) spar lower attachment point – titanium
65 Fin fairing – composite
66 Detachable (lower) tail tip fairing – composite
67 Fin rear spar attachment point
68 Centre/rear fuselage lower attachment points – two-off
69 Common datalink antenna radomes (two-off) – composite/honeycomb
70 Wing-to-fuselage attachment interlink – machined steel
71 Wing-to-fuselage attachment rib with integrally machined (forward and aft) pick-ups – titanium
72 Main landing gear (MLG) support fittings and trunnions – titanium
73 Jacking point
74 MLG auxiliary spar – composite
75 MLG (trunnion aerodynamic fairing
76 Main wing incorporating a mixed aluminium alloy and graphite composite construction with graphite composite skins – Vought Aircraft Industries
77 Wing spars – four "I" section spar construction (inboard) and three-spar construction outboard – Vought Aircraft Industries
78 Wing leading edge (detachable) – composite
79 Wing splice zone
80 Wing baffle rib – composite
81 Wing tip down point
82 Detachable wing tip – composite
83 Common datalink antenna mount
84 Engine yoke attachment point
85 Ground power panel
86 Ventral fin (composite/honeycomb) – two-off

Environmental control system (ECS), de-ice and pressurisation

A1 EO/IR dewscoent filter
A2 Forward avionics bay ECS ducting
A3 Forward avionics bay ECS heat exchanger – fuel cooled
A4 Forward avionics bay ECS heat exchanger blowers – two-off
A5 Dry nitrogen bottle – pressurisation system
A6 Fuel coolers (both sides) – ECS
A7 Aft avionics bay ECS heat exchanger – fuel cooled
A8 Heat exchanger ducts – two-off
A9 Engine bleed air – ECS and pressurisation system
A10 Forward avionics bay pressure regulator and safety valves – pressure bulkhead mounted
A11 Ice detector – mounted on starboard side, but shown on port side for clarity
A12 Pneumatic system storage bottle – located under starboard rear fuselage
A13 De-icing ESB
A14 V-tailplane electro-expulsive de-icing actuator coils
A15 Ice protected inlet
A16 Wing electro-expulsive de-icing actuator coils

Flying controls

C1 Hinge-mounted inboard spoiler
C2 Aileron actuator – one per aileron
C3 Spoiler actuator – one per spoiler
C4 Hinge-mounted outboard spoiler
C5 Hinge-mounted (outboard) "rudderavator" – mixed construction
C6 Two-part hinge-mounted aileron – mixed construction
C7 Outboard "rudderavator" power control unit – electrical
C8 Inboard "rudderavator" – mixed construction

Avionics and electrical

E1 MTS-B EO/IR turret
E2 ESM antenna
E3 MTS-B EO/IR rotational drive
E4 Collision avoidance radar antenna and gimbal
E5 Total air temperature probe – mounted on starboard side, but shown on port side for clarity
E6 Landing light
E7 EO/IR electronics unit
E8 BAMS flight data recorder
E9 SINCGARS HPA
E10 AIS transponder unit
E11 OmniStar GPS
E12 Diplexer
E13 ELT antenna
E14 UHF/LOS receiver/transmitter
E15 Automated mission management system
E16 ELT unit
E17 INMARSAT antennas
E18 IFF antenna
E19 1.21m-wide ka/X-wideband Satcom antenna
E20 Merlin ESM
E21 VHF/UHF SINCGARS antenna
E22 VHF/UHF antennas
E23 CDL antenna – omni-directional
E24 Current sensor
E25 Kearfott INS/GPS navigation units
E26 De-icing system control unit
E27 Radio signal processor (RSP) power supply
E28 LN-100G INS/GPS navigator
E29 RSP
E30 Batteries (Li-Ion) – three-off
E31 Power discrete (fwd) controller
E32 DC power tray – forward
E33 TA12S GPS receiver
E34 MFAS liquide cooling system
E35 Ethernet hub
E36 MFAS antenna gimbal
E37 MFAS (360°) antenna
E38 IMMC – two-off
E39 BAMS airborne recorder
E40 Analogue splitter
E41 Radio altimeter – two-off
E42 Radio altimeter antennas – transmitters (two-off) starboard side, receivers (two-off) port side
E43 Link 16 antenna
E44 UHF relay antennas – transmit port side, receive starboard side
E45 Power and discrete controller
E46 TCAS computer
E47 AC generator control unit
E48 DC power tray – aft
E49 TCAS upper antenna
E50 UHF Satcom antenna
E51 Anti-jamming antenna
E52 GPS antenna
E53 GPS antenna – L1/L2 and L-band OmniStar
E54 Static discharge wicks
E55 Differential GPS antenna – both sides
E56 INMARSAT HPA
E57 10kW AC generator
E58 IFF transponder
E59 Bus couplers
E60 UHF Satcom receiver/transmitter
E61 UHF power amplifier
E62 Transformer rectifier unit
E63 Narrow band comms assemblies
E64 Dual CDL modem
E65 LOS radio frequency assembly
E66 Anti-collision strobe/navigation light
E67 Common datalink antennas – two-off
E68 TCAS antenna
E69 IFF antenna
E70 SINCGARS HPA
E71 12kW DC generator
E72 25kVa generator control unit
E73 Conformal antenna bay – both sides
E74 HVPS Satcom
E75 Wide-band receiver/exciter (WBRE)
E76 WBRE power supply
E77 Antenna drive electronics unit
E78 ABE
E79 INMARSAT SBU
E80 INMARSAT SDU
E81 WB Satcom modem

Fuel system

The wing fuel tanks act as a heat sink for the ECS fuel-cooled heat exchangers

F1 Main fuselage fuel tank
F2 Fuel transfer line
F3 Cross-wing fuel transfer line
F4 Fuel selector valves and cross-connectors
F5 Breather line
F6 Wing tip fuel line
F7 Fuel tank gravity filler point
F8 Fuel balance line
F9 Single point refuelling/defuelling connector
F10 Fuel quantity probe – eight-off
F11 Fuel filter
F12 Fuel vent line

Powerplant

P1 Rolls-Royce AE3007H turbofan engine – rated at 8,290lb (36.8kN)
P2 Fan case with Kevlar containment ring and bypass duct
P3 Ignition exciter
P4 Pressure oil filter
P5 FADEC connector
P6 Accessory gearbox
P7 Fuel-cooled oil cooler
P8 Exhaust mixer
P9 Engine starter air intake – bled from ram-air intake duct
P10 Engine start air line
P11 Air start ground connector
P12 Engine start air controller
P13 Full authority digital engine control (FADEC) unit

Undercarriage and hydraulics

U1 Electronically controlled, forward retracting hydraulically actuated modified CF-5F nose landing gear (NLG) fully hiking unit – Heroux
U2 NLG doors – composite
U3 Steering unit – hydraulic
U4 NLG retraction actuator
U5 MLG inboard door (closed on the ground) – composite
U6 MLG uplock actuator
U7 MLG inboard door actuator – hydraulic
U8 Inward retracting, hydraulically actuated MLG unit with electronically controlled multi-disk anti-skid brakes – Heroux/Goodrich
U9 MLG (forward) aerodynamic fairing – composite
U10 MLG scissor link
U11 MLG outboard door – composite
U12 MLG side brace actuator
U13 Hydraulic reservoir
U14 MLG (rear) aerodynamic fairing – composite

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