
GLOBAL HAWK FLIGHT TEST DATA

Table A.1 contains information on the Global Hawk flight test program. Data include sortie numbers, sortie dates, flight hours, objectives, results of the mission, and additional comments regarding significant events during the test. These data were used to create the charts used in Chapters Two and Four.

The data in the table were derived from the flash reports and quick-look reports that documented the results of each sortie.

Table A.1
Global Hawk Flight Test Data^a

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
1	2/28/98	AV01	AW-01	0.95	0.95	II	Functional checkout; airworthiness first flight	Most primary objectives met	Landing gear would not lock up; ECS low temperature resulted in shortening of mission by 11 minutes.
2	5/10/98	AV01	AW-02	2.4	3.4	II	Functional checkout; demonstrate basic flight controls and systems; instrument calibration	Objectives met	LRE-MCE handoff demonstration; 150 knots current air speed (KCAS), 41,000-ft mean sea level (MSL).
3	5/30/98	AV01	AW-03	5.35	8.7	II	Functional checkout; expand flight envelope and demonstrate systems/functions	Objectives met	Brake problem resulted in stopping slightly off the runway; TO 0701 LD 1222.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
4	8/29/98	AV01	AW-04	5.7	14.4	II	Functional checkout: expand flight envelope; demonstrate FL600	Most primary objectives met	Minor discrepancies in some systems; FL593 reached (61,000 inertial); TO 0835 LD 1417.
5	9/17/98	AV01	AW-05	6.1	20.5	II	Functional checkout: expand flight envelope; demonstrate FL600 full fuel load	Most primary objectives met	Flown at night, no chase aircraft; IMMC A failed; UHF SATCOM failed again; first interaction with FAA ATC.
6	10/29/98	AV01	AW-06	9.7	30.2	II	Medium endurance		Executed missed approach.
7	11/20/98	AV02	AV02-01	3.1	33.3	II	Functional checkout: first flight; evaluate core airworthiness	Objectives partially met	Shortened by 0.5 hour owing to sticking outboard spoiler; link with MCE could not be established.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
8	12/4/98	AV02	AV02-02	3.3	36.6	II	Functional checkout; reflly of first flight	Objectives mostly met	Wideband communications demonstrated; aircraft taxied off runway autonomously after landing; CDL failure detected prior to takeoff.
9	12/19/98	AV02	AV02-03	7.4	44.0	II	Functional checkout; general and payload objectives	Objectives partially met	General objectives mostly met; no ISS payloads met; reached FL583; ISS shut down; unsuccessful reboot attempts—temperature fell below lower limit.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
10	1/22/99	AV02	AV02-04	6.4	50.4	II	Payload test	Objectives partially met	General objectives mostly met; some ISS objectives met; imagery taken for the first time (poor quality).
11	1/28/99	AV01	AV01-07	1.7	52.1	II	Functional checkout; lightweight; expand sortie duration envelope	Objectives not met	Engine anomalies due to software problem indicated early RTB; was to evaluate fix to wing fuel transfer discovered in August.
12	2/2/99	AV01	AV01-08	10.1	62.2	II	Functional checkout; reflly AV1-07 mission/endurance	Objectives mostly met	Reached 64,700 ft MSL; hydraulic system failure cut flight short; emergency backup systems worked.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
13	2/20/99	AV02	AV02-05	12.5	74.7	II	ISS basic functionality and characteristics	Objectives met	Reached 61,000 ft; 144 of 156 planned sensor events; continued improvement in Ku-band communications.
14	2/28/99	AV01	AV01-09	18.1	92.8	II	Demonstrate endurance, towed decoy, fuel balance below 5000 lb fuel; basically refly of 2/2/99 mission	Objectives met	Except decoy objective; reached 66,400 ft MSL.
15	3/11/99	AV02	AV02-06	0.7	93.5	II	ISS basic functionality and characteristics	Objectives not met	Aborted: landing gear fault during autonomous retraction.
16	3/13/99	AV02	AV02-07	15.2	108.7	II	Payload functionality test for incentive scoring; continued ISS checkout	Objectives met	Simultaneous SAR and EO spot imaging.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
17	3/26/99	AV02	AV02-08	5.8	114.5	II	Payload functionality checkout	Objectives not met	Mission terminated early owing to poor SAR performance.
18	3/29/99	AV02	AV02-09	0.7	115.2	II	Payload functionality test	Objectives not met	Air vehicle crash owing to initiation of auto destruct by transmission from Nellis Air Force Base.
19	5/18/99	AV01	AV01-10	7.8	123.0	II	Prepare for payload integration/wideband link evaluation	Objectives met	First flight after crash.
20	6/3/99	AV01	AV01-11	27.2	150.2	II	SAR sensor checkout/long endurance		

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
21	6/11/99	AV01	AV01-12	7.8	158.0	II	Exercise SAR	Objectives met	Second time AV01 carried SAR.
22	6/19/99	AV01	AV01-13	12.8	170.8	III	D&E— Roving Sands 1	Objectives met	Operated in NAS under FAA control for majority of mission; use of encrypted links for C ² and imagery; demonstrated quick turnaround time; first in crawl series.
23	6/26/99	AV01	AV01-14	2.0	172.8	III	D&E— Roving Sands 2	Objectives not met	Curtailed: SAR would not boot up.
24	6/27/99	AV01	AV01-15	17.2	190.0	III	D&E— Roving Sands 2B	Objectives met	Operated in NAS under FAA control for majority of mission; use of encrypted links for C ² and imagery; demonstrated quick turnaround time.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
25	7/15/99	AV01	AV01-16	12.9	202.9	III	D&E—Extended Range 1-1	Objectives met	Third D&E Phase III flight; 91 of 119 planned sensor events accomplished; imagery disseminated.
26	7/27/99	AV01	AV01-17	23.9	226.8	III	D&E—Extended Range 1-2	Objectives met	Continued expansion and demonstration of Global Hawk capabilities: different imagery, tasking, links, etc.
27	8/12/99	AV03	AV03-01	4.0	230.8	III	Functional checkout: first flight, evaluate core airworthiness	Objectives met	

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
28	8/30/99	AV01	AV01-18	25	255.8	III	D&E— Extended Range 2/JEFX/CAX	Objectives met	66,000 MSL; 5 ISS restarts during D&E phase; 3 during engineering phase of flight.
29	9/9/99	AV01	AV01-19	18.8	274.6	III	D&E—CAX 99-10 U.S. Marine Corps Exercise	Objectives met	Sixth D&E participation flight.
30	9/16/99	AV03	AV03-02	12.0	286.6	III	Functional checkout; continue airworthiness	Objectives met	LRE CCO provided by 31st TES.
31	10/4/99	AV01	AV01-20	25.3	311.9	III	D&E—Extended Range U.S. Navy Seals	Objectives met	Except GMTI; Extended Range 3-01 exercise; first in walk series.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
32	10/8/99	AV01	AV01-21	24.8	336.7	III	D&E—Extended Range 3-02 U.S. Navy Seals and CAS	Objectives met	
33	10/19/99	AV01	AV01-22	24.8	361.5	III	D&E—Extended Range 4-01 Alaska	Objectives met	Except Delta V; Extended Range 4; tenth dedicated D&E exercise.
34	10/25/99	AV01	AV01-23	25.5	387.0	III	D&E—Extended Range 4-02 Alaska	Objectives met	Extended Range 4, second flight; operation outside CONUS; 23.8 hours ISS continuous operations.
35	10/30/99	AV03	AV03-03	3.0	390.0	III	Functional checkout: ISS	Objectives not met	Early RTB due to AC generator anomaly.
36	11/4/99	AV03	AV03-04	24.6	414.6	III	Functional checkout: ISS	Objectives met	AV03 cleared for participation in D&E.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
37	11/9/99	AV03	AV03-05	17.4	432.0	III	D&E—Desert Lightning II	Objectives met	Notes 434 total test hours in Global Hawk program to date; 230.5 hours flown since June 1999.
38	11/13/99	AV03	AV03-06	9.2	441.2	III	D&E—Desert Lightning II	Objectives not met	Curtailed following IMMC A failure due to low temperature in avionics compartment.
39	11/17/99	AV03	AV03-07	19.8	461.0	III	D&E—Desert Lightning II	Objectives met	14 D&E sorties flown since June 1999.
40	12/3/99	AV03	AV03-08	22.0	483.0	III	D&E—JTF-6 Sortie 1	Objectives met	
41	12/6/99	AV03	AV03-09	9.8	492.8	III	D&E—JTF-6 Sortie 2	Objectives not met	Early RTB; postflight taxi "event."

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
42	3/11/00	AV01	AV01-24	6.6	499.4	III	Engineering test; demonstrate LRE 2, MRE 2; wing pressure validation	Objectives met	62.3 kft; no sensor suite; first sortie with AFFTC as RTO.
43	3/17/00	AV01	AV01-25	5.8	505.2	III	Engineering test: wing pressure validation (2)	Objectives met	
44	3/24/00	AV04	AV04-01	4.1	509.3	III	Functional checkout: first flight AV04	Objectives met	
45	3/30/00	AV04	AV04-02	4.5	513.8	III	Functional checkout	Objectives not met	Early RTB due to INS anomaly; plan was 11.2 hours.
46	4/4/00	AV04	AV04-03	5.4	519.2	III	Functional checkout	Objectives not met	Early RTB due to low fuel temperature; plan was 24 hours.
47	4/11/00	AV04	AV04-04	24.2	543.4	III	Functional checkout	Objectives met	Functional validation of LRE 3 and MCE 2 during flight.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
48	4/14/00	AV04	AV04-05	31.5	574.9	III	Functional checkout	Objectives met	Maximum altitude 65,100 ft; testing Ku-band satellite links for East Coast deployment.
49	4/20/00	AV04	AV04-06	10.5	585.4	III	D&E deployment to Eglin Air Force Base	Objectives met	Resumption of D&E; LREs and MRE located on East Coast; FAA coordination.
50	5/8/00	AV04	AV04-07	28.0	613.4	III	D&E—Linked Seas - 1	Objectives met	First trans-ocean flight; first East Coast launch and recovery; first NATO demonstration; first Global Hawk operation in international airspace.
51	5/11/00	AV04	AV04-08	14.1	627.5	III	D&E—Linked Seas - 2	Objectives partially met	UHF satellite link problems.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
52	5/18/00	AV04	AV04-09	22.5	650.0	III	D&E—JTFEX00-1	Objectives met	
53	5/19/00	AV04	AV04-10	14.7	664.7	III	D&E—JTFEX00-2	Objectives partially met	Early RTB—IMMC failure.
54	6/19/00	AV04	AV04-11	8.3	673.0	III	Redeployment to EAFB	Objectives partially met	ISS-IMMC interface problems.
55	6/30/00	AV05	AV05-01	0.8	673.8	III	Functional checkout	Objectives partially met	Early RTB—failure in EO/IR LN-100 navigator.
56	7/7/00	AV05	AV05-02	3.0	676.8	III	Functional checkout	Objectives mostly met	Refly of previous mission; flight curtailed by 1 hour due to failure of ruddervator actuator.
57	7/12/00	AV05	AV05-03	11.4	688.2	III	Functional checkout	Objectives met	SAR checkout.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
58	7/19/00	AV05	AV05-04	23.8	712.0	III	Functional checkout	Objectives met	Final Phase III flight.
59	8/4/00	AV05	AV05-05	8.5	720.5	III+	Payload configuration functional checkout	Objectives partially met	First test flight in support of Australian deployment; ISS would not boot in new mode.
60	8/11/00	AV05	AV05-06	3.8	724.3	III+	SAR maritime mode evaluation	Objectives met	Preparation for Australian deployment.
61	8/31/00	AV05	AV05-07	5.8	730.1	III+	Refly 5-05 VPH GMTI	Objectives mostly met	Test for video phase history (VPH), ISS reconfigure from VPH to legacy mode.

Table A.1—continued

Sortie Number	Date	Air Vehicle	Official Sortie Designation	Flight Time (hours)	Cumulative Flight Hours	Phase	Objective	Results	Comments
62	9/12/00	AV05	AV05-08	7.0	737.1	III+	Support JEFX time-critical targeting	Objectives met	JEFX first sortie.
63	9/14/00	AV05	AV05-09	0	737.1	III+	Support JEFX time-critical targeting	Objectives not met	Mission abort prior to takeoff—exceed cross-track error criteria on rollout.

SOURCE: HAE UAV JPO flash reports, quick-look reports, and flight test summary data charts.

^aFL = flight level; ECS = environmental control system; TO = takeoff; LD = landing; ATC = air traffic control; CDL = command data link; ISS = integrated sensor suite; RTB = return to base; NAS = national air space; GMTI = ground moving target indicator; INS = inertial navigation system.