

Global Hawk Program

Integrity - Service - Excellence

Global Hawk Operational Overview



U.S. AIR FORCE

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Flight Displays

Windows Type Environment

File View Options Help

FCS... AVS... ATC... Link... Payload... Surv...

Ack 0 Msgs

Heading (HDG) HDG 360 T

Airspeed (KCAS) 0

Baro 29.92

Altitude (ft) 0

Execute Over Susp... Goto... Lvl... RTB Land Cancel

COM	0vHdg	Power	STEER	WP	0
IFF 1	LAT 99:99:999		GSPD		0 Knts
2	LON 999:99:999		RNG		
3c	FUEL 0 LB		ETE		
4	GWT 0 LB		ETA		
LINK C2 None	BARO 00.00		WIND 000/ 0		
CONT	RAT		NO_NAV		0

Flight Control (GH 96-0001 MSNFCAIS110)

File View Help

Alt Rate (ft/min) 0

Spoiler (deg) 0

ITT (Deg F) 715

N1 (%) 19

PLA (deg) 19

Rad Alt (ft) 0

Gear Up Emergency Gear Down Taxi

Gear Down A 4 8 12 Stop Taxi

Nav Lts On Gear Brake Rate

Nav Lts Off WOV Brakes Speed

Strobes On Emerg Fuel Shutoff Land

Strobes Off Vehicle Shutdown Abort Land

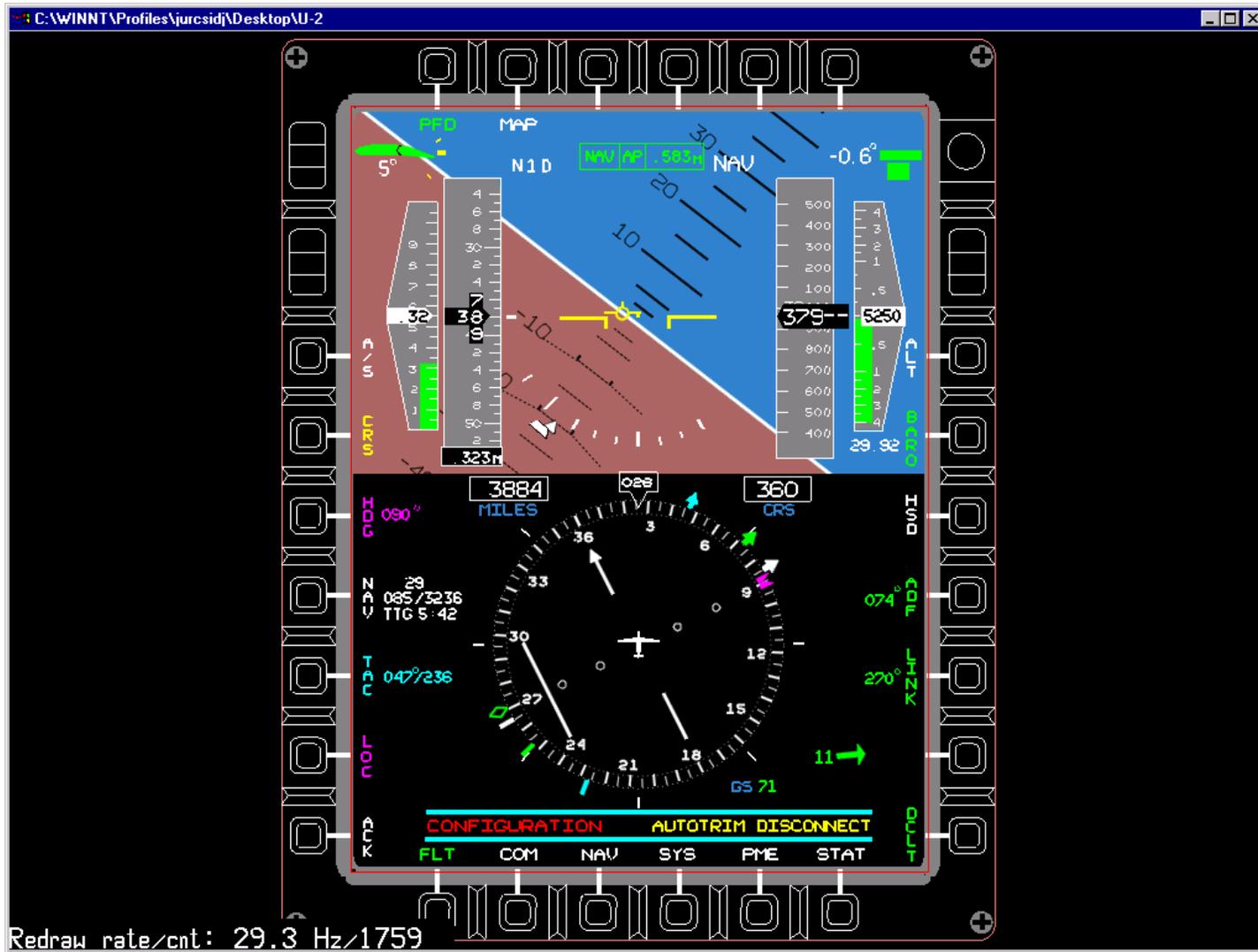
Execute Cancel

H367-0244C



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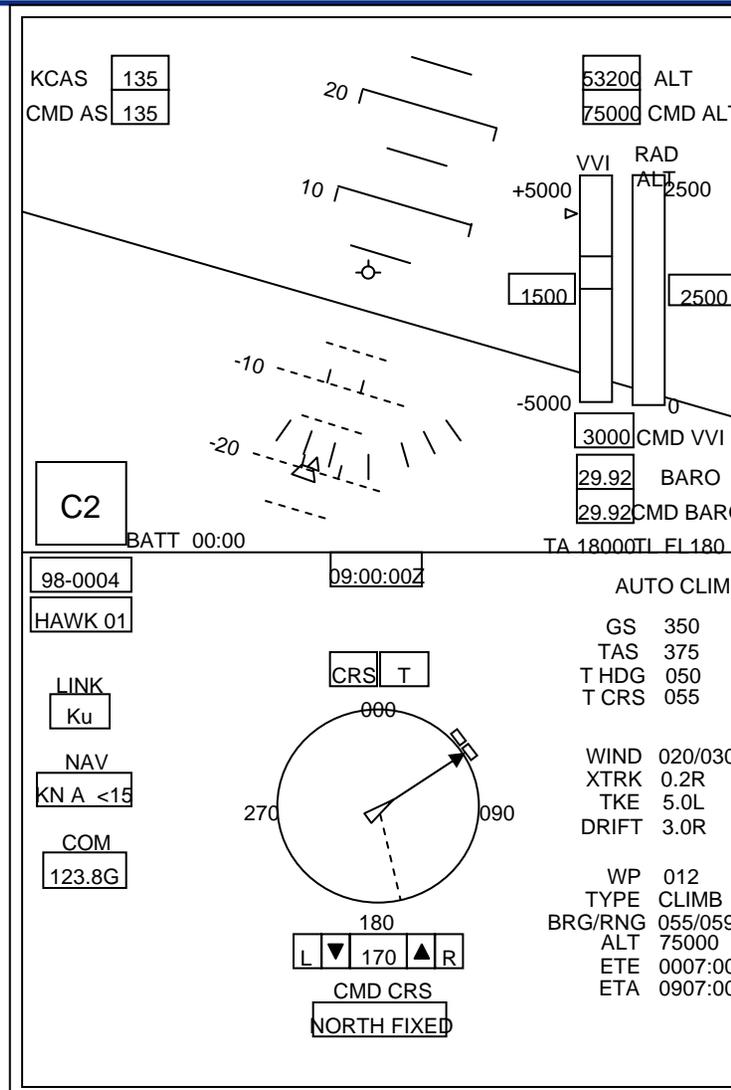
U-2 Primary Flight Display





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Possible Global Hawk PFD





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Available Command and Control Modes

- **GH Pilot can deviate from pre-programmed mission by selecting the following commands:**
 - **On Track Control**
 - **Override Control**
 - **Suspend**
 - **Go To**
 - **RTB**
 - **Land**



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On Track Control

- **As the name suggests, this mode allows altitude and airspeed to be modified while the aircraft remains “on-track”. This means the aircraft will continue its autonomous flight with respect to all other control commands. As such, the on-track control commands do not interrupt aircraft steering or track over the ground.**
 - **Altitude - in this mode alt rate cannot be selected.**
 - **Airspeed - max deviation from airspeed schedule is -10 kts**



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Override Control

- This mode is used to transfer aircraft control from autonomous flight or on-track control to aircraft override control.

- The following control commands can be issued in this mode:
 - Heading
 - Altitude
 - Altitude Rate - max of ± 1600 fpm
 - Airspeed - max deviation from airspeed schedule is -10 kts



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Suspend

- Anytime during autonomous flight, a Suspend command can be initiated. When initiated, the aircraft flies a pre-programmed, elliptical holding orbit.
- The holding orbit described by one minute straight legs, at altitudes below 14,000 ft msl and one and one-half minute straight legs above 14,000 feet msl.
- Use of the suspend command does not guarantee terrain avoidance.



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Goto

- While the aircraft is in **On-Track Control**, **Override Control**, or **Suspend Control**, a **Goto** command can be initiated. When initiated, the aircraft navigates to the designated waypoint and resumes autonomous flight according to mission plan.
- Use of the **Goto** command does not guarantee terrain avoidance until the **Goto** waypoint is passed.



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RTB

- **when initiated, the aircraft flies a pre-programmed, contingency-2 route, to return-to-base.**



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Land

- When this command is initiated, the flight control system looks into the mission plan and, based on the aircraft's present location, determines where the IAF waypoint is in relation to the aircraft present location. Depending on the results, one of two scenarios will be initiated.
 - **Aircraft not past IAF waypoint:** aircraft will proceed direct to IAF waypoint and the aircraft will follow the flight plan from IAF waypoint to the landing waypoint.
 - **Aircraft past IAF waypoint:** aircraft receives a “must land” command, which inhibits the automatic “go-around” that may occur after FAF passage while the aircraft is in glide slope mode.
- This command does not guarantee terrain avoidance.



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SUMMARY

- **Override Control:**
 - Heading
 - Altitude
 - Altitude Rate - max of ± 1600 fpm
 - Airspeed - max deviation from airspeed schedule is -10 kts
- **On Track control:**
 - Altitude - in this mode alt rate cannot be selected.
 - Airspeed - max deviation from airspeed schedule is -10 kts
- **Go to** - when initiated, the aircraft navigates to the designated waypoint and resumes autonomous flight according to mission plan.
- **RTB** (when initiated, the aircraft flies a pre-programmed, contingency-2 route, to return-to-base.
- **Land** – This command does not guarantee terrain avoidance.



Global Hawk

Flight Characteristics

■ **Unusual Attitude Recovery**

- **Since the global hawk was designed to operate autonomously and avoid unusual attitudes, there is no unusual attitude recovery capability.**
- **If an unusual attitude were experienced the only course of action would be to wait and see if the aircraft recovers on its own or terminate the flight.**