



DEPARTMENT OF THE AIR FORCE  
WASHINGTON, DC

OFFICE OF THE SECRETARY

15 February 2023

MEMORANDUM FOR DACOWITS

FROM: HQ USAF  
1720 Air Force Pentagon  
Washington DC 20330-1720

SUBJECT: USAF DACOWITS RFI Response RFI #7

**QUESTION #7**

In December 2022, via RFI 5, the Military Services briefed DACOWITS on the updates to properly fitting personal protective equipment (PPE) and combat equipment for women. As a follow-up, the Committee requests a written response from the Army, Navy, Marine Corps, Air Force, and Coast Guard to provide more information on female in-flight bladder relief systems (IBRS), to include the following:

a. Current IBRS or female urinary devices available to servicewomen, as well as options being evaluated. Provide pictures with detailed explanations.

The Air Force currently has two fielded systems available for aircrew: AMXDmax and Skydrate, both systems are produced by Omni Defense Technologies. Both systems provide a hands-free solution that automatically collects urine and keeps the user dry and on-mission

- The first IBRS for females was fielded in 2006 by Omni. The AMXDmax system is the improved upgrade to the initial system and was fielded in 2014. The system uses a “pad” interface and systems remain in inventory and are available to aircrew on all approved aircraft today.
- The Skydrate system is the improved upgrade to the AMXDmax and was fielded in 2022. The system uses a “pad” interface, has a higher flow rate, additional pad sizes, and an inline switch for easier operation. The system is available to aircrew on all approved aircraft today.
- The Air Force currently has an additional female IBRS in development. The AFWERX Challenge in 2022 awarded a contract to Airion for their innovative solution in the AIRUS system. The system is currently in prototyping and testing. A photo is not available due to current prototype contract, but the design uses a “cupped liner” interface. The system is estimated to be available in 4Q 2024.
- We work closely with the other services to incorporate Joint requirements to ensure solutions can be leveraged by other interested Services. The Air Force Female Bladder Relief team is closely collaborating with Navy counterparts on additional IBRS programs. The Air Force

has plans to purchase the Triton Superior Portable Urine Relief System and MaTech Air Bladder Relief Device, both Navy programs, when available to provide additional options to aircrew.



## Female System

### 1 CONTROL UNIT

The **Control Unit** pumps urine from the pad to the collection bag, providing non-invasive, automated bladder relief at 2.25 liters/minute. The integrated air pump inflates the pad to 6psi when connected.

- **Manual Button** - Manually activates the liquid pump while held.
- **Battery Indicator** - The 3 lights provide the battery status (4 urinations per light).



### 2 COLLECTION BAG

The **Collection Bag** is made from durable, medical-grade urethane. The bags have odor proof, liquid blocking air vents that allow air to vent and prevent it from inflating.

- **Reusable Bag** - 1200ml capacity with drainage valve
- **Disposable Bag** - 1600ml capacity with super absorbent polymer gel.

Both the reusable and disposable bags have an emergency over-capacity limit of an additional 1000ml.

### 3 CONTROL UNIT HOSE

The **Control Unit Hose** connects Control Unit and Bag to the In-Line Switch. Comes in standard (12") and extended lengths (18" and 24").

- **Nomex Fabric** - Fire-retardant cover fabric
- **Anti-Kink** - The hose contains anti-kink tubing
- **Quick Release Connectors** - The connectors will disconnect when exposed to the forces of emergency ejection.

### 4 IN-LINE SWITCH

The In-Line Switch allows for one handed operation of the system.

- **Manual Button** - Manually activates the liquid pump while held.
- **ON/OFF Switch** - Inflates (ON) and deflates (OFF) the pad.



### 5 PAD HOSE

The **Pad Hose** connects the In-Line Switch to the pad, and should be connected to the pad prior to donning.



### 6 FEMALE PAD

The Female Pad is designed to inflate. This creating a seal against the body to prevent leaks and creates space between the pad and the pelvic floor, allowing liquid to flow unimpeded to the pickup point.

- **Fabric Cover** - Soft, non-woven, non-absorbent fabric
- **Urine Sensors** - Two salinity sensors detect the presence of urine and automatically activate the control unit.
- **Pickup Point** - Marked by a Golden Dot, the pickup point between the two sensors and should be at the lowest point in the ejection seat.

## SKYDRATE

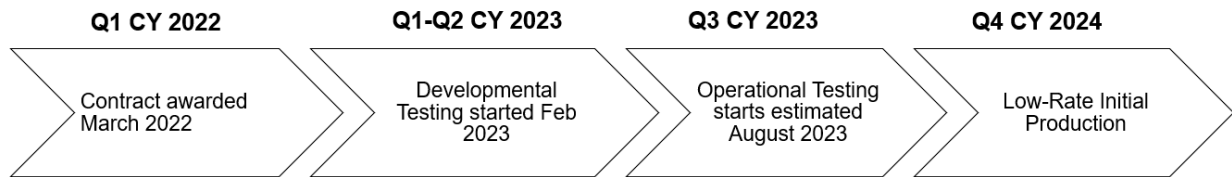
Safe-to-Fly, fully automated, optimized for use in ejection seat aircraft.



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b. Provide the roadmap for implementation by FY23, broken down by quarter, annotating major milestones (e.g., initial production, final mass production, availability across the Services, and expert training).

### ***Inflight Female Bladder Relief: AIRUS Road Map***



Previous Efforts:  
**AMXDmax**  
-Fielded 2014 to A/W approved aircraft  
**Skydrate**  
-Fielded 2022 to A/W approved aircraft

c. What is the planned funding and who is the specific Office of Primary responsibility (OPR)?

- The Airion AIRUS prototyping is currently fully funded through the Human Systems Division.
- The OPR is Air Force Lifecycle Management Center; Agile Combat Support; Human Systems Division (AFLCMC/WNU).

d. What is your Service’s plan to disseminate IBRS or female urinary devices (e.g., supply chain)?

- The AIRUS fielding and dissemination plan will entail Human Systems Division utilizing the Joint Enterprise Fielding and Surveillance Marine Corps logistics organization for initial fielding. The devices will be housed at their warehouse and available for order by aircrew. Ordered units will be delivered to aircrew within 48 hours.
- The long-term logistics and fielding support will be provided by the Defense Logistics Agency.

e. What training is provided once IBRS or female urinary devices are sent to installations?

- Omni provides training for each new bladder relief device purchased for both AMXDmax and Skydrate systems. The vendor will travel to the aircrew location and provide individual on-site training. They have also created online training videos and detailed instructions are included in the starter kit.

- Airion will provide online training videos for the AIRUS system that will be accessible to aircrew as well as detailed instruction included in the starter kit.