F-16 Flight Simulator Egress System Operations Manual

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Required Tools

- 10 mm wrench
- Drill
- Drill bit set
- 4 mm allen key
- Dial indicator
- Pencil

Rail Mounting Procedure

Note: The following procedure assumes that the rail and carriers will be mounted upon a level surface

1. Determine a reference line that runs the length of the rails.
2. Measure 2.47 inches from this reference line and make marks the length of the rails.
3. Align rails with marks made on surface.
4. Fasten rails to surface using M6 bolts.
5. Attach carriers to aluminum spacers.
6. Fasten baseplate to aluminum spacers.
7. Guide on pair of carriers onto the fastened rail.
8. Guide the second rail into the other two carriers.
9. Run the baseplate back and forth the length of the rails, adjusting the unfastened rail as needed to allow for smooth operation.
10. Use a clamping device to obtain a “soft lock” of the second rail.
11. Attach a dial indicator to the baseplate at the end of the unfastened rail.
12. Bring the dial indicator in contact with the unfastened rail and zero the indicator.
13. Carefully and slowly run the baseplate the length of the rails, taking note of the maximum displacement of the indicator.
14. Adjust the rails accordingly to bring the maximum displacement under 0.002 inches.
15. Fasten second rail to surface using M6 bolts.

Electromagnet Mounting Procedure

1. Locate the mounting hole on cockpit simulator base for electromagnet.
2. Thread M6 bolt through cockpit base into back of electromagnet.
3. Plug electromagnet into receptacle on cockpit base.
4. Attach provided bar to rear of baseplate using M6 bolts.

Using the Flight Simulator Egress System

Preparing for use

1. Turn on the electromagnetic lock using the switch located next to the electromagnet.
2. Verify that the seat is in the locked position by checking the engagement of the lock.
3. Use the stairs on the left side of the gurney to climb into the cockpit seat.

Entering the cockpit

Pilot

1. Secure yourself in the cockpit seat using the safety harnesses.
2. Use the handrail to guide yourself into the base of the cockpit.
3. Once the seat reaches the cockpit, use the handles on the cockpit base to pull the seat completely into the simulator, activating the electromagnetic lock.

Instructor/Bystander

1. Disengage the rear lock to allow the seat to move along the rails.
2. Use the handle on the back of the seat to help the pilot move into the cockpit.

Exiting the cockpit

Pilot

1. Use the internal switch to disengage the electromagnetic lock.
2. Use the handles on the cockpit base to initially move the seat from the cockpit.
3. Once out of the cockpit, use the handrail to move the seat completely to the rear of the gurney.
4. Before exiting the seat, reengage the rear seat lock.

Instructor/Bystander

1. If the pilot does not turn off the electromagnetic lock with the internal switch, turn it off with the external switch.
2. Use the handle to help the pilot move out of the cockpit simulator and along the gurney.
3. Reengage the lock before the pilot exits the seat.

Emergency Procedures

In any case requiring a quick exit from the simulator, the primary task of the pilot or bystander is breaking away from the force of the electromagnet.

Pilot

1. Disengage the electromagnet by using the power switch mounted on the inside of the cockpit (location varies based on customer requirements). If the switch cannot be quickly located, proceed to step 2.
2. Use both feet to push off from the base of the simulator. If the electromagnet was not manually powered off, a large enough force will physically separate the seat from the electromagnet and allow it to move freely.
3. Once outside the base of the simulator, use the handles and side hand rail to keep pushing the seat along the gurney.
4. Once the seat reaches the end of the rails, reengage the rear seat lock.
5. Release the safety harness latches to exit the cockpit seat.

Bystander

1. Disengage the electromagnet by using the power switch mounted on the rear of the cockpit base. If the switch cannot be quickly reached, proceed to step 2.
2. Grasp the handle located on the back of the cockpit seat. If the electromagnet was not manually powered off, a large enough force will physically separate the seat from the electromagnet and allow it to move freely.
3. Pull the seat out of the simulator, walking backwards with it as it travels.
4. Once the seat reaches the end of the rails, reengage the rear seat lock.
5. Assist the pilot with the release of his or her safety harnesses and sure that they dismount the cockpit seat.

Bill of Materials

Part Number	Part Name	Quantity	Description	Manufacturer	Price	System	Lead Time
1	Linear Motion Uniguide Rails	2	Support Seat/User Movement	MotionUSA	$450.00	Guide	3 Weeks
2	Linear Motion Uniguide Carriages	2	Support Seat/User Movement	MotionUSA	$450.00	Guide	3 Weeks
3	Electromagnet	1	Lock Seat	McMaster-Carr	$185.33	Locking	3 Days
4	Lumber	2	Gurney/Cockpit Support	Lowe's	$17.76	Support	1 Day
5	Corner Tie's	6	Gurney/Cockpit Support	Lowe's	$38.40	Support	1 Day
6	HDG Nail	1	Gurney/Cockpit Support	Lowe's	$4.88	Support	1 Day
7	Purlin Hanger	8	Gurney/Cockpit Support	Lowe's	$21.44	Support	1 Day
8	M8 Bolts	25	Secure Seat to Plate	Fastenal	$12.00	Mounting	1 Day
9	M6 50mm Screws	50	Secure Rail System	Fastenal	$19.00	Mounting	1 Day
10	Switches	2	Electromagnet Control	Lowe's	$10.00	Locking	1 Day
11	Handles	2	Assist User Movement	Lowe's	$10.00	Guide	1 Day