

## MOARdV FLIGHT SYSTEMS FAMILIARIZATION MANUAL



## OVERVIEW

The MOARdV Flight Systems Familiarization Manual describes an alternate IVA for the FASA Gemini Pod interior. This IVA takes advantage of the RasterPropMonitor mod to provide an enhanced gameplay experience, while keeping a stock-alike feel for Gemini command pod. Many of the functions of a typical flight can be managed from IVA using the MOARdV Flight Systems modification.

The MOARdV Gemini Command Pod uses ModuleManager to replace the Gemini interior. No FASA installation files are altered, so removal of this mod is as simple as deleting the GameData/MOARdV folder.

In addition to updating the Gemini Command Pod IVA, this mod adds RPM compatible cameras to:

- The FASA Gemini Docking Nosecone for improved docking visibility (DockCam)
- The FASA Probe Camera, allowing the probe camera to function as a periscope (ExtCam).

## REQUIREMENTS

To use the MOARdV FS IVA, KSP 0.23 or newer is required. In addition, the following mods are required:

- [RasterPropMonitor](#). The [current dev version of RPM](#) is required for the controls to operate correctly.
- The [FASA Gemini Command Pod](#) and its IVA must be installed, as well. Versions 3.60 and 3.70 are tested; older editions likely will, as well.
- [ModuleManager 1.5.6](#) (included with RPM).

To fully enjoy the updated Gemini Pod, the following mods are optional, but recommended:

- [MechJeb 2.1.1](#) or a newer dev build is strongly recommended to enable various features of the cockpit.
- [The SCANSat mod](#), release 5 or newer, will enable the MAP mode of the multi-function display.

This mod will work without SCANSat and/or MechJeb, but some features will not function.

## INSTALLATION

This package should be unzipped into the KSP root directory. The files should end up in GameData/MOARdV/FlightSystems. Installation elsewhere will cause the mod to fail to function.

## LICENSE

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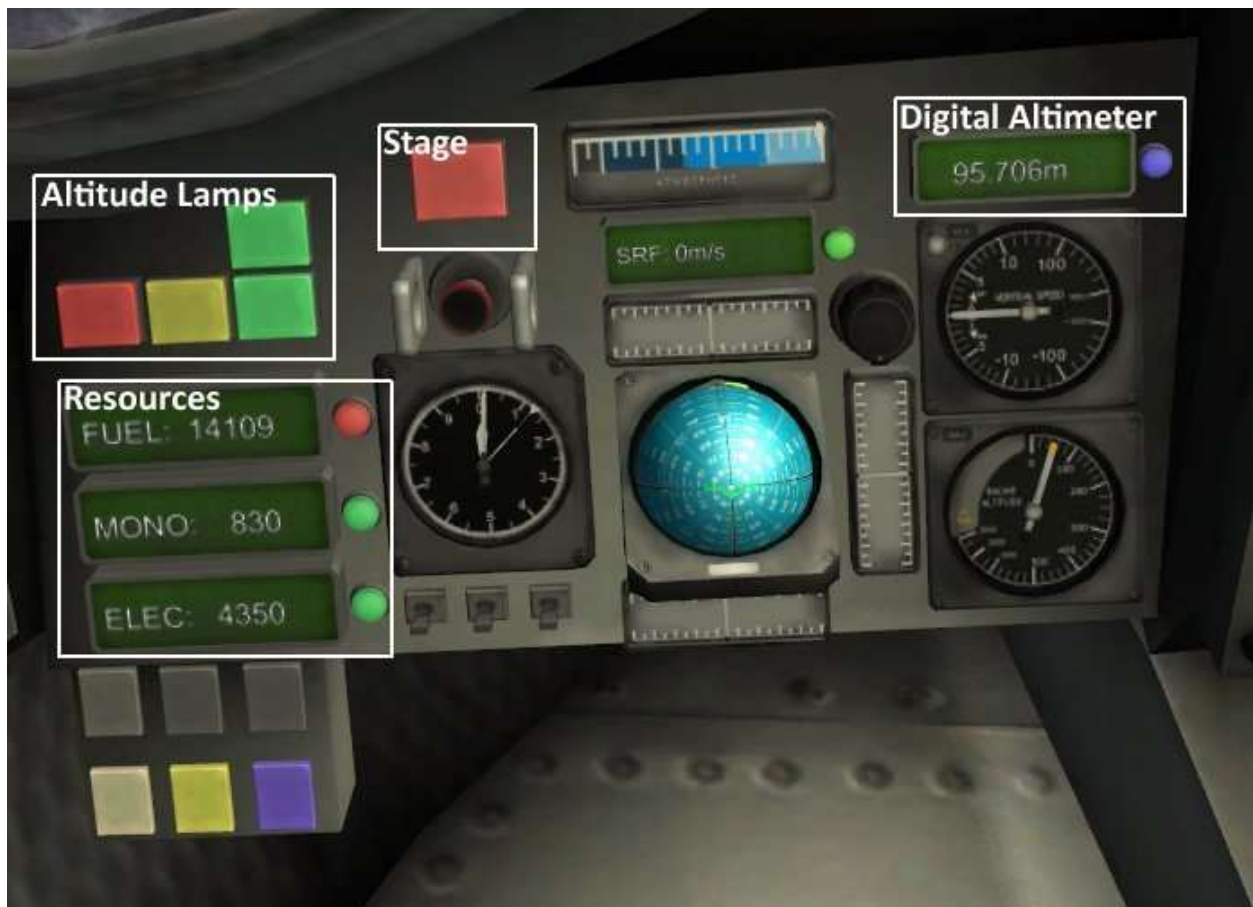
The models used for the MechJeb buttons and Action Group buttons are by Alexustas, and available under the terms of CC 3.0 BY-NC-SA.

Special thanks to Frizzank for granting me permission to distribute a modified Gemini Command Pod interior config.

## FEATURES

With this mod, much of the FASA IVA becomes functional, either providing status information, or providing control inputs for the ship. This section is a tour of the features.

### Command Pilot Console



The Command Pilot console (left IVA seat) provides an overview of flight status. Many of the flight instruments are found in the original Gemini IVA, but there are some new additions. These are:

- Multi-mode Digital Altimeter: The illuminated button next to the display selects the mode. When it glows blue, altitude ASL is being displayed. When it glows green, it indicates radar altitude.

- Big Red Stage button. It glows red when active.
- Radar Altitude indicator lamps for reentry task reminders (35km green on top row, 15km green on bottom row, 10km yellow, and 1km red).
- Multi-mode Digital Fuel Gauge: displays total fuel remaining (FUEL), stage fuel remaining (STG), or total fuel remaining (%). The mode control button is illuminated, and it displays the current stage fuel levels (green indicates >45%, red indicates <10%, and it color shifts green-yellow-red between those values).
- Multi-mode Digital Monopropellant Gauge: displays total monopropellant remaining (MONO) or total percent monopropellant remaining (%). The button color shifts like the fuel gauge, but the percentage is based on total monopropellant.
- Multi-mode Digital Power Gauge: displays total power remaining (ELEC) or total percent power remaining (%). The button color shifts like the fuel gauge, but the percentage is based on total battery capacity.

The Second Pilot (right) console duplicates all of the key features.

### Command Pilot Left Console



Situated on the left bulkhead of the cockpit, the Command Pilot Left Console provides access to most of the common in-flight control modes of the MechJeb SmartASS flight computer. On ships that do not have a MechJeb flight computer, these buttons do nothing.

The Second Pilot's seat has a duplicate console on the right bulkhead.

### Lower Pedestal Panel



The Lower Pedestal Panel provides various control and status indicators:

- External lighting (EXT LIGHT) and Cabin lighting (CABIN LIGHT) controls.
- Landing gear (LDG GEAR) and brake (BRAKE) controls (for ships equipped with such features).

- Roll, pitch, and trim control knobs (NOTE: they provide feedback on current setting, but they do not adjust trim).
- Analog backup compass.
- Mission flag plaque.
- Indicator Panel 1, providing the following status lamps:
  - Fuel, Monopropellant, and Power status lamps (green/yellow/red).
  - High G warning lamp (active when crew G-forces exceed 3.0G).
  - Target lamp (active when a vessel or body is targeted).
  - Node lamp (active when a maneuver node is enabled in the flight computer).
  - Suborbital lamp (active when the current vessel orbit will result in lithobraking).
  - Surface contact indicator (active when the vessel has landed).
  - Main Engine Cut Off indicator (active when the engines are off).
  - Stage Enabled (active when the vessel can stage).
  - Uplink / Downlink status (active to indicate data communications with the Kerbal Space Center).

Aft of the flag plaque are the command pilot and pilot throttles (not pictured).



## Main Pedestal Panel



The middle Pedestal console consists of the Multi-Function Display (MFD), throttle setting indicators, an atmospheric depth gauge, and fifteen indicator lamp/switches.

Throttle Setting indicators are placed on both sides of the middle pedestal console, providing both the Command Pilot and Second Pilot information on the current active throttle setting.

Action Group switches (AG1 – AG0) control up to ten action groups. The following control switches are also in this location:

- SAS gyroscopic stabilizer enable (SAS GYRO).
- Reaction control system enable (RCS ARM).
- Kill Rotation (KILL ROT).
- Ascent Guidance Sequence (ASC SEQ).
- Node Execute Sequence (NODE SEQ).

The KILL ROT, ASC SEQ, and NODE SEQ are functional only if the MechJeb flight computer is installed.

### **Multi-Function Display Modes**

The Multi-Function Display has multiple modes for displaying information during various phases of flight. These modes are accessed by pressing the labeled buttons 0-9 and A-E located on the top, bottom, and left side of the display. The buttons on the right side of the display are “soft buttons” whose functionality are enabled only in certain modes.

#### **1 – FLT**

When the MFD is in Flight Mode, it displays information relevant to launch, landing, and orbital operations.

#### **2 – MAP**

When the MFD is in Map Mode and the SCANSat mapping mod is installed, the MFD displays a map of the body that the vessel is currently orbiting. The top two soft buttons control map zoom, while the middle button cycles between map modes (altitude, slope, and biome).

#### **3 – ORB**

When the MFD is in Orbit Mode, the MFD displays a schematic representation of the vessel’s orbit, along with the orbited body and its atmosphere, when applicable. Additional orbital traces are drawn when appropriate.

#### **4 – NAV**

The NAV Mode displays information about the currently orbited body, or about a targeted body. When a body is targeted, navigational information including phase angles, ejection angles, and estimated delta-V are displayed.

#### **5 – CRW**

Crew Mode displays the vitals for up to eight crew who are in seats equipped with biomonitors. Only seats with IVA views are equipped with these biomonitors.



## **6 – TGT**

The Target Mode allows the command pilot or second pilot to program the onboard flight computer with a target.

## **7 – RSRC**

The Resource Mode displays an over view of all resources found on the vessel. Resource information is for the entire vessel, not the current stage.

## **8 – GRP**

The Action Group Mode displays the state of the ten action groups, along with their memos from the vessel description. Please refer to the RasterPropMonitor documentation for instructions on setting up action group memos.

## **9 – JEB**

When the MechJeb mod is installed, the Jeb Mode provides a menu for controlling the MechJeb SmartASS feature, along with a few other functions. Many of these functions are available on the Command Pilot Left Console and the Main Pedestal Panel for ease of access.

## **0 – STBY**

When the MFD is in Standby Mode, the display is dimmed.

## **A – PFD**

When the MFD is in Primary Flight Display mode, a navigation ball is rendered on the screen.

## **B – DCK**

The Dock Mode provides information for docking with another vessel overlaid on a view through DockingPortCam1. In a typical installation, DockingPortCam1 is found in the Gemini Docking Nosecone. The up/down soft buttons control camera zoom, while the TGT button shows or hides the target direction indicator overlay.

## **C – CAM1**

External Camera 1 Mode displays the view from ExtCam1. ExtCam1 is able to zoom as well as pan left and right.

## **D – CAM2**

External Camera 2 Mode displays the view from ExtCam2. ExtCam2 is able to zoom as well as pan left and right.

## **E – RSVD**

The Mode function for button E is reserved for future RPM features.

## Upper Pedestal Panel



The Upper Pedestal Panel contains Indicator Panel 2. The following status lamps are enabled:

- RCS, SAS, GEAR, LIGHT: Indicate that the associated subsystems are enabled.
- CONT: Indicates ground contact.
- MECO: Indicates main engines are shut off.
- STAGE: Indicates that the staging subsystem is ready.
- TWR: Provides a warning when the craft thrust-to-weight ratio is too low for lift off.
- A/D: Indicates whether the craft is ascending (green), descending (red), or neither (yellow).
- HEAT: Provides a warning when pod exterior temperature is high.
- FUEL: Provides a warning when current fuel supplies are below 5%.
- HIGHG: Provides a warning when current G are high.

## Crew Hatch Handle



Located on the Command Pilot's hatch is the Crew Egress Handle. Double-clicking this handle sends the current Kerbal into EVA.

## REVISION HISTORY

17 January 2014: Manual Version 1.0, MOARdV Flight Systems f/w Version 1.0 20140117. Initial version.

19 January 2014: Manual Version 1.01, MOARdV Flight Systems f/w Version 1.0 20140119. Updated some MFD mode descriptions.

21 January 2014: Second pass over documentation, add note about Probe Camera functionality.