# ATFS-400
## Model 25

**Standard Features:**

- 25 foot planetary arm*
- 3 electro-mechanical motion drive systems*
- Cockpit Module with 360° pitch and roll motion
- G-Pointing® technique which provides precise Gx, Gy and Gx forces*
- Maximum G up to 15 Gs or to user's requirement
- Maximum G onset rate of 10 Gs per second
- Modular cockpit to user's fidelity and concurrency requirements,
- Replication of specific type/model/series aircraft


***G-pointing, Frequency Domain, System Bandwidth and Signature Technology**

*Refer to page 3 of this document for explanations on frequently used ATFS-400 terms*

**Training Applications:**

- Basic Fighter Maneuvers with the potential for realistic Dissimilar Air Combat Training
- Air-to-Ground Missions — CAS, SEAD, and DEAD
- Defense maneuvering in a hostile environment
- Dynamic weapons employment
- Conversion Training – Lead-in Fighter Training
- Interactive multi-ship engagements and operations in a Distributed Mission Training environment

**Training Applications:**

- Identical Replication of Tactical Flight Environment
- Replication of Tactical In-Flight Physiological stresses
- Provides greater confidence and experience in high 'G' environment – validate correct performance of AGSM
- Increases G- Tolerance and G-Readiness
- Fly various exercises across the mission profile
- Provides an alternative to training in a live aircraft – saving money, or complements live aircraft training program


AUTHENTIC TACTICAL FIGHTING SYSTEM ATFS-400™

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# ATFS-400
## Common Terms

**Signature Technology** – Signature Technology as it applies to the ATFS – 400 PHOENIX product line, addresses inherent mechanical, electrical and software design features which allows the operator to sense the nuances of motion of the machine (motion signature), recall previously learned or practiced skills and effectively apply those techniques. Conversely, by a pilot responding to the particular "Signature" of the machine, a symbiotic man machine interface is created where the machine is more responsive to the pilot input while the pilot is more perceptive in discerning the machine nuances of motion. This resultant Signature relationship elevates the experience between the pilot and simulator, making the experience as close to a real flight experience as can be achieved.

**Motion Signature** – A motion signature enables the operator to sense the motion of the machine and apply previously learned skills during its operation based on his experience with that vehicle's motion and performance signature, much like with a sports car.

**Frequency Domain Design** – Frequency Domain Design is a design philosophy that employs various techniques aimed at addressing the simulator design at a system-level, allowing for requirements to be formulated for interactions between sub-systems that are generally missed or overlooked with a conventional design approach.

With this in mind designing in the Frequency Domain produces an end product that increases the strength, specifically with the ATFS-400 PHOENIX, the centrifuge arm strength. Typically, there is a certain amount of flexion in the arm so that it will not break. However, this flexion is unacceptable for tactical flight training since the requirement demands a strong arm without flex during acceleration. This is important because when the arm flexes, undesirable motion artifacts are produced, decreasing the realism of the flight. By having a centrifuge arm designed "in the Frequency Domain" an arm with a high bandwidth (for tactical fidelity) is produced which is extremely strong and therefore doesn't flex during dynamic operation conditions. Thus, with a stiffer arm, cycle lag times are greatly reduced enabling the machine to provide a more rapid response to pilot input, and motion artifacts greatly decreased or abated.

**System Bandwidth** – A systems bandwidth is essentially the overall responsiveness of a system and takes into consideration the design and ensuing responsiveness of all sub-systems including, electro mechanical, software, etc.

The ATFS-400 PHOENIX is able to produce a bandwidth equal to or greater than that of current 4th and 5th generation aircraft thereby replicating each aircraft's ultra responsiveness to the pilots actions, ultimately providing a flight simulator which is nearly identical to flying a real aircraft.

**G-Pointing** – The G-Pointing motion control system controls the high performance motion system and is the key to the realistic simulation of varying G forces. Pilot control inputs are processed by aeromodel to create realistic virtual aircraft responses. Simultaneously, commands are sent to the G-POINTING system to properly position the ATFS-400 gondola, containing the modular tactical aircraft cockpit, and vary the speed of the high performance motion system to precisely create the correct inertial G forces in all three axes. G on-set and off-set rates correspond to those of the tactical aircraft being simulated.

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