**GPSS**

Affordable GPS roll steering for general aviation

**Complete GPS Flight Tracking:** Interfaces with GPS to fly pre-programmed flight plans hands-free.

**Smooth Waypoint Transitions:** Calculates turn initiation point to fly from centerline of current leg to centerline of new leg, enabling autopilot to fly a precisely-curved transition path between legs.

**Reduced Pilot Workload:** Eliminates need to set course arrow or heading bug at leg changes.

**Enhanced Autopilot Functionality:** Fully-interoperable with any existing S-TEC model autopilot.*

*Please check STC list for applicability*
GPSS
Get from point A to point E hands-off with GPSS

The GPSS interfaces with the composite roll steering commands output by
GPS navigators to fly a complete, pre-programmed flight plan—hands off.
If the GPS database includes instrument approach procedures, the flight plan
can also include an approach to the destination airport. GPSS is available as
a standard feature on the System Fifty-Five X autopilot, and is also available
as an upgrade to any existing S-TEC autopilot.*

What is it?
In the past, general aviation autopilots flew navigational flight paths by either
“tracking” or “coupling to” CDI or HSI needle deflections. This resulted in
some unintentional wandering, particularly at station passage, due to needle
deflection variations and noisy signals.
Pilots of “big iron” have enjoyed the benefits of roll steering since the early
60’s through the functional output of Inertial Navigation System (INS). Their
flight management systems output roll steering commands to the autopilot
for all of the leg types typically encountered in instrument flying. Roll steering
commands are inherently more accurate and fly the aircraft much more
precisely as they are based on known location, flight path, ground speed,
and anticipated maneuvers.

How does it work?
As opposed to “tracking”, which essentially is reacting to signal input, GPSS
anticipates course changes. When approaching a waypoint, for example,
GPSS transitions to a new leg by anticipating arrival at the waypoint, and
initiating a coordinated turn so that the aircraft is established on the new
heading without overshooting or under-shooting the new course.

In aircraft equipped with a GPS navigator that outputs composite roll
steering commands, the pilot can delegate steering of the aircraft for enroute
or approach flight directly to the navigator. In enroute flight, GPSS will fly
the desired flight path as defined by the flight plan stored in the GPS, very
accurately, since the GPS not only knows exactly where it is, but where
it’s going.
As the leg changes are anticipated, the GPS navigator calculates the exact
turn initiation point required to fly from the centerline of the current leg
directly on to the centerline of the new leg, based on the ground speed of
the aircraft. It then sends steering commands to the GPSS function, and the
autopilot flies a precisely curved transition path between the legs.
In addition to more accurate course tracking, GPSS significantly reduces
the pilot’s workload by not having to set the course arrow or heading bug
at leg changes (although many pilots may make those setting changes for
enhanced situational awareness).

GPS & GPSS - now and in the future
Almost all general aviation GPS systems output composite roll steering
commands for enroute navigation and limited approach transition procedures
such as DME arcs. In addition, GPS system manufacturers typically include
full procedure approaches, transitions to approaches, procedure turns,
holding patterns, and more in their databases and software.
If your current GPS does not output roll steering, GPSS-equipped S-TEC
autopilots track or couple to GPS flight paths using normal NAV and APR
modes. Whatever the capabilities of your GPS system, GPSS can fly it...now
and in the future.

Retrofitting GPSS to existing autopilots
Consistent with our long standing building-block
philosophy, and our policy of not obsoleting our
customers’ autopilots, GPSS is available as an
add-on module for any existing S-TEC model
autopilot.*
Your authorized Genesys Aerosystems autopilot
dealer installs and interfaces the GPSS converter to
the existing autopilot’s heading function. The lighted
panel switch selects GPSS or Heading mode. Note
that if a valid roll steering command is not available,
GPSS will not activate, and this will be indicated by
a flashing GPSS light.

*Please check STC list for applicability

To save valuable panel space, the GPSS converter is configured as a separate
panel-mounted switch and remotely-mounted control box. The control switch is
1.32 x .82", and projects only 1” behind the panel (plus cable connector).