



# INSTALLATION INSTRUCTIONS

## Comant Industries, Inc.

II A42020

Revision: B  
ECN 08-102

### INSTALLATION INSTRUCTIONS FOR CI 420-221 17dB GPS COMDAT® ANTENNA

#### PART IDENTIFICATION SUPPLEMENT:

This part is categorized as a "TSO C144 Incomplete System" per FAA 8150.1B, Section 17(b). This antenna provides a major function of a TSO C144 17dB receiver system only and contains a pre-amplifier. It may be used with any approved TSO C144 17dB receiver system only, limited to the RTCA DO-160D environmental category noted on the identification label attached to the part.

#### RECOMMENDATIONS & LIMITATIONS

**WARNING:** This Product is to be Installed Exclusively with GPS Receiver Equipment Requiring 17dB gain.

**NOTICE:** This product is TSO C144 compliant with an FAA approved gain deviation to C144 specifications and has a nominal gain of 17dB.

#### IT'S IMPORTANT TO UNDERSTAND THAT THIS DOCUMENT IS NOT AN INSTALLATION AUTHORIZATION

The CI 420-221 17dB GPS COMDAT® antenna delivers optimum performance only when installed correctly. To ensure adequate structural strength of the aircraft for associated air loading during flight, use of a backing plate or doubler (**not supplied**) refer to **FAA ADVISORY CIRCULAR 43.13-2A** for complete information is highly recommended. It is the responsibility of the installation agency to determine the appropriate and adequate antenna installation.

**WARNING:** The CI 420-221 17dB GPS COMDAT® antenna is electrostatic discharge (**ESD**) sensitive. **ESD protection** procedures must be used as a minimum.

- 1) Don't remove from the connectors the **ESD** protective plugs, until you connect the coaxial cables to the antenna.
- 2) Use a grounded wrist strap when attaching the coaxial cables to the antenna.
- 3) Make sure that the receiver is not turned on before the antenna is completely installed.
- 4) Ground the center pins of the connecting coaxial cables using two jumper cables before connecting it to the antenna to dissipate any residual **ESD** charges that may have accumulated on it.

#### LOCATION:

- 1) The CI 420-221 17dB GPS COMDAT® antenna must be mounted on the top of the aircraft to assure maximum visibility of satellites. The optimum antenna location is at a high point on the cabin when viewed in level flight and away from projections such as a propeller, tail surfaces, or the shadow of larger antennas. **NOTE: The CI 420-221 17dB GPS COMDAT® antenna must be at least four feet away from any antenna to avoid interference. (EXCEPTION - COMANT/COMDAT VHF ANTENNAS).**

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- 2) On top wing aircraft, the antenna should be mounted toward the leading edge of the wing to minimize shading the antenna during climb-out when navigation information is usually desired. Avoid mounting the antenna at the rear edge of the windshield since, under certain conditions, static may be generated in this area. **NOTE: The location chosen should provide the least obstructed visual line of sight path from the signal source to the antenna elements.**

#### INSTALLATION PREPARATION:

- 1) Prepare the surface for antenna installation in such a manner to ensure a ground contact of less than .003 Ohm. If bare metal surfaces are needed for surface preparation they should be treated with Alodine 1200 or Iridite to eliminate aluminum oxidation.
- 2) Drill holes in aircraft skin per footprint provided, the clearances holes for the mounting screws must be .172" dia. and .625" dia. for the GPS TNC connector. **NOTE: The pictures shown below are for reference only; don't use it as a template for drilling holes.**

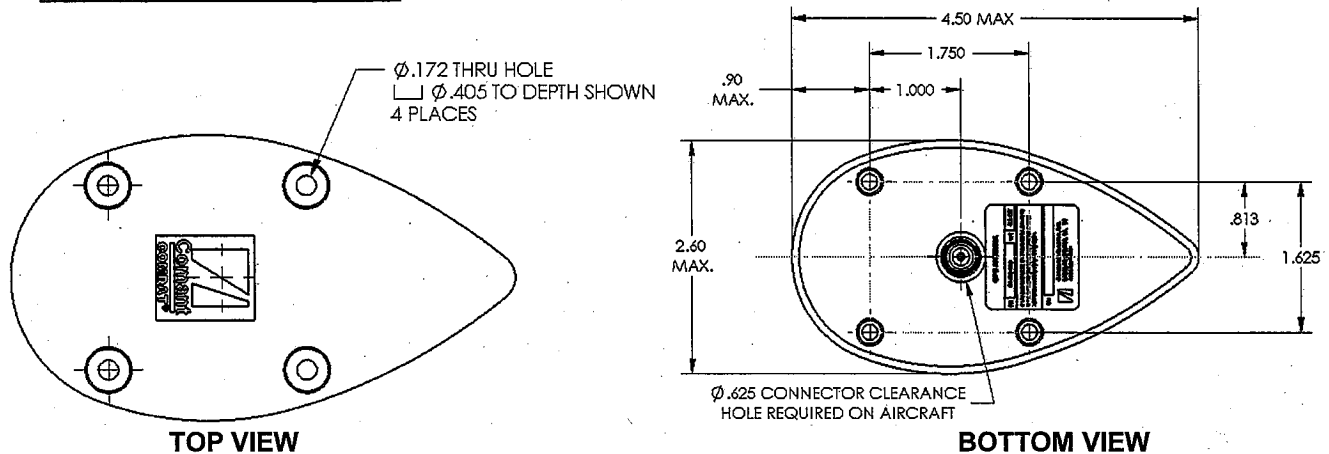


FIGURE 1.

#### INSTALLATION:

- 1) Mount the CI 420-221 17dB GPS COMDAT® antenna using the #8-32 fasteners (**Not Supplied**) by sandwiching the aircraft skin between the antenna and the internal backing plate. Gently tighten the hardware so that uniform stress is placed on either side of the antenna element and make sure that the connectors have sufficient clearance through the aircraft skin. Apply a torque of  $25 \pm 5$  in-lbs.
- 2) Metal adapter plates are **optional** but they should be used if the curvature or compound radius of skin is such that antennas cannot be directly installed.
- 3) Apply a small, smooth fillet around the periphery of the antenna with RTV Sealant. **NOTE: Do not apply RTV Sealant on the fastener heads at the base of the antenna.**
- 4) For maximum signal strength, the length of the antenna lead to the receiver should be minimized to be as short as possible. **NOTE: PAINTING A CI 420-221 17dB GPS COMDAT® ANTENNA MAY DEGRADE PERFORMANCE AND IS NOT RECOMMENDED. MODIFICATION OF ANY COMANT PRODUCT WILL VOID THE WARRANTY.**

#### COMPOSITE AIRCRAFT INSTALLATION:

- 1) Except for preparation instructions, installation is the same with the addition of a ground plane, as indicated in **FAA ADVISORY CIRCULAR 43.13-2A, section 37.C** may enhance performance. Receiver lightning protection can be improved by grounding the coaxial shield with an appropriate metal mounting clamp at any convenient location before the receiver is connected to the CI 420-221 17dB GPS COMDAT® antenna.

#### LIMITATIONS:

- 1) "The conditions and tests required for TSO approval of this article are minimum performance standards. It is the responsibility of those desiring to install this article either on or within a specific type or class of aircraft to determine that the article, when installed, performs in accordance with the design specifications that meet this TSO. The article may be installed only if further evaluation by the application documents and acceptable installation is approved by the Administrator."
- 2) Installation of these products should be done by qualified personnel.
- 3) Contact Comant Industries for specific aircraft applications and limitations.