



Installation Manual

for

Dual Stack, Minimum Outer + Minimum Center Rail Tray Mount Kit RK2027

Document P/N RKD2027-2

Revision NC

May 31, 2005

List of Revisions

| Revision | Date | Description | Pages |
|----------|----------|----------------------|-------|
| NC | 05/31/05 | Original Disposition | All |
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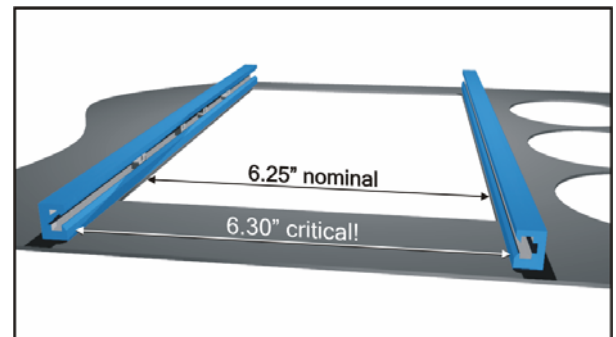
Introduction

The Radorax avionic support rail installation kit provides a straightforward retrofit for almost any aircraft. The following documentation is provided to install the Radorax P/N RK2027 Dual Stack, Minimum Outer + Minimum Dimension Center Kit in your aircraft.

| Document # | Description | Used With: RK2027 |
|---------------------------|---|-------------------|
| RKD2027-1 | Packing List / Certificate of Conformance | X |
| RKD2027-2 | Installation Manual | X |
| RKD2027-3 | Parts Manual | X |
| RKD2027-4 | Instructions for Continued Airworthiness | X |
| SA01330LA | STC Front Sheet | X |

General Notes

- A. **IMPORTANT:** The distance between the faces (inside dimension) of installed Radorax support rails **MUST** be **6.30** inches. This spacing provides maximum compatibility with all avionic trays and facilitates the use of other Radorax products, such as Radorax [Tray Cams](#), [Closeout Panels](#), and [Dzus Adapters](#).
Use the [RK400 Installation Spacer Tool](#) for simple, precise alignment of the rails.
- B. Tag all parts, including attaching hardware (unless otherwise noted), removed to gain access to work areas. Protect all parts from damage during the installation process.
- C. Following any drilling or cutting operation, remove burrs and metal particles. Apply a thin coat of zinc chromate, epoxy, or equivalent primer to bare metal surfaces except when the hole is used as a grounding point.
- D. When reinstalling ground wires, or components requiring grounding, clean the structure surface to provide good electrical contact.



For an original installation not involving the removal of existing avionics tray attachments, please proceed to step 2.1. All item numbers in parentheses (eg. item xx) refer to item listed in RAS Parts Manual p/n RKD2027-3.

Removal of Existing Support Rails (Step 1)

- 1.1 Remove avionics equipment from their trays. Remove screws attaching trays to the existing brackets. Remove all back-straps and attaching hardware supporting the forward end of the trays.
- 1.2 Remove any Pilot and Copilot instrument panel overlays. Remove avionics bay sub-panel, if applicable.
- 1.3 Remove the LH and RH tray attaching angles/devices from the instrument panel.

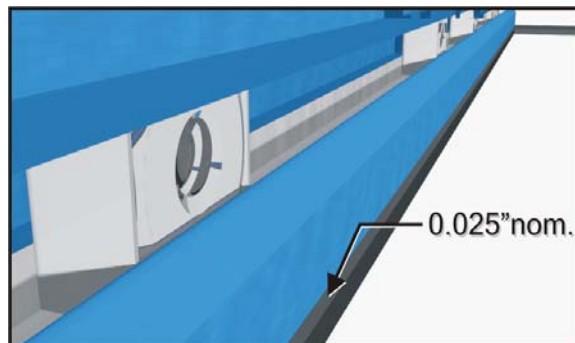
Assembly and Installation of Avionics Support Rails (Step 2)

-The following guidelines are based on a 6.25" wide avionics bay cutout and 6.30" ID rail spacing. This provides a 0.025" lip to facilitate hiding the avionics trays:

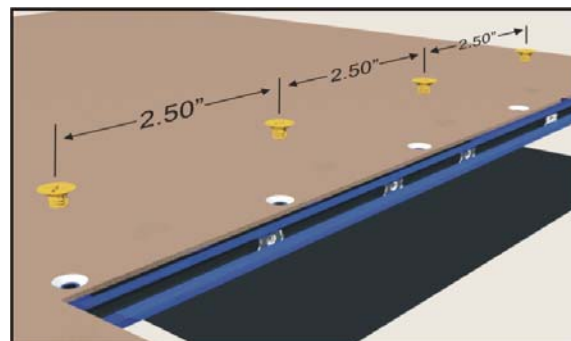
-The new rails are mounted to the instrument panel using the included structural NAS514P632-4P (item 7) screws.

-NAS514P632-5P screws for .125" thick instrument panels are available upon request.

-Included with the kit is enough hardware to install 12 sliding nut assemblies in EACH slot.



2.1 Cut rails to length. Match to the length of the removed LH and RH angles, if applicable. **Trim the rail so as to leave the engraved part number attached and on the forward-facing (visible) side of the rail, when installed. IMPORTANT! AFTER CUTTING RAILS TO LENGTH, BE SURE TO FILE OR POLISH THE CUT-END TO REMOVE ANY STRESS RISERS WHICH MAY LEAD TO CRACKING.**



2.2 Instrument panel/rail fastener hole pattern layout. *Reference the RKD2027-3 Parts Manual for permissible fastener locations.* Temporarily fasten all of the rails in place, 6.30" ID apart, and centered on the avionics bay cutout. Verify an inside dimension of 6.30" between the rail faces. *Use the Radorax [RK400 Rail Installation Spacer](#) to lock the rails together and to facilitate the installation of the rails as an assembly.*

- If using existing holes for mounting, verify that the hole positions do not exceed the dimensions noted in the enclosed Parts Manuals (RKD2027-3), and that the screw spacing is $\leq 2.50"$.

2.3 Drill and tap avionic support rails. Drill a #36 hole in the rail at each fastener location. Thread each hole with a 6-32 tap. While possible to drill a blind hole and use a bottoming tap, it is permissible to drill and tap a through-hole. Some deburring will be necessary for the nut assemblies to move freely, and care should be exercised not to drill and tap deeper than the center of the slot to avoid unnecessary burring on the opposite side.



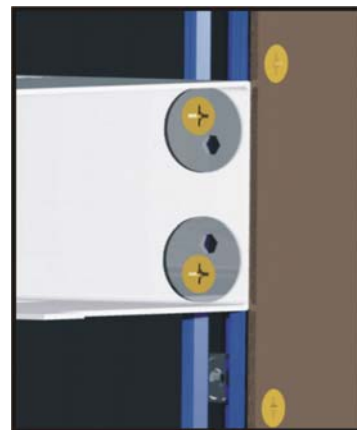
Assembly and Installation of Avionics Support rails (Step 2), cont.

- 2.4 Verify the installation of the total number of sliding nut assemblies (Items 2, 3a, 3, 4) used for the installation, plus 4-6 extra assemblies in each rail before final installation of the rail to the structure.
- 2.5 Install the LH, Center(s), and RH rails to the instrument panel using the screws (Item 7) supplied with the kit. A small amount of Loctite (or equivalent) may be used to secure the screws.
- 2.6 Install the avionics trays. Radorax avionic support rails are designed to take advantage of the increased rigidity offered by the use of countersunk screws and dimpled screw receptacles. Because of the integrity of mounting offered by this system, back-strapping the avionic trays is not necessary, provided the Radorax support rails are affixed in a way which will bear the ultimate load factors of your aircraft.

For trays not supplied with countersunk holes, dimple each mounting hole with a #6 dimple-die, or equivalent means. Trays which are to be mounted to the offset center rails will require modification with the Radorax RK100 Tray Modification Tool, or equivalent means. **To achieve perfect face alignment of all avionics, use Radorax RK5000-P Tray Cam Kit.**

After each tray is prepared for installation, stack the tray in it's respective position, pushed forward far enough to access the sliding nut assemblies. Slide all the nut assemblies (Items 2,3a,3,4) into place that are being used to mount the top tray.

Move the tray into position and fasten using the supplied screws (Item 5). Do not fully tighten the screws until the tray is verified level in it's proper position. Tighten screws to lock in place.



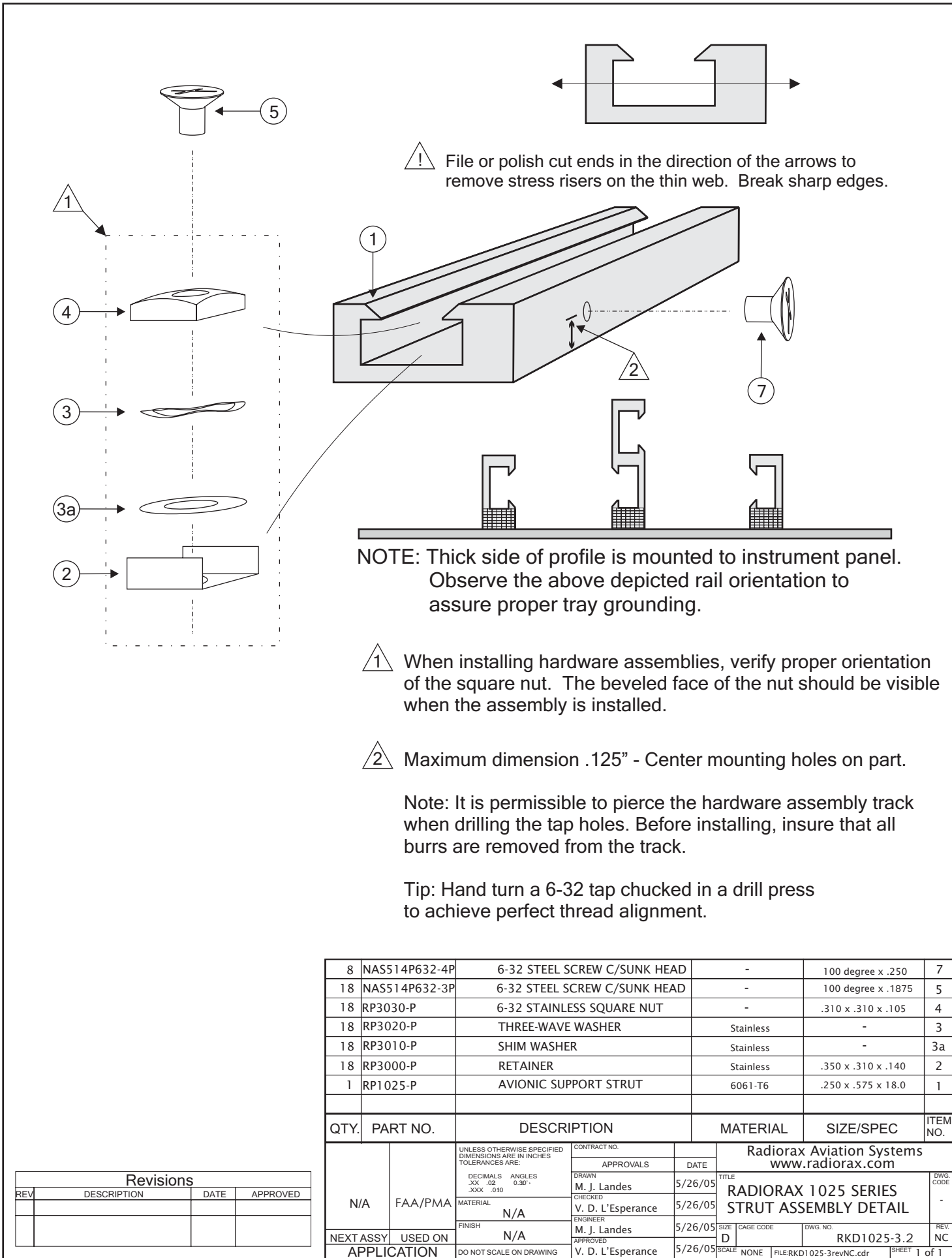
Each additional tray is mounted by positioning the nut assemblies, installing the mounting screws, sliding the tray into position beneath the last permanently affixed tray, and tightening the screws.

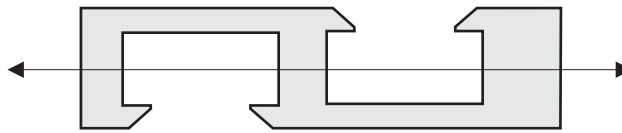
Nut assemblies for future use may be stored between the nuts used to mount trays, or grouped toward one end of the rail.

Use a Radorax RK4000-(x) Closeout Panel Kit to close out any remaining space.

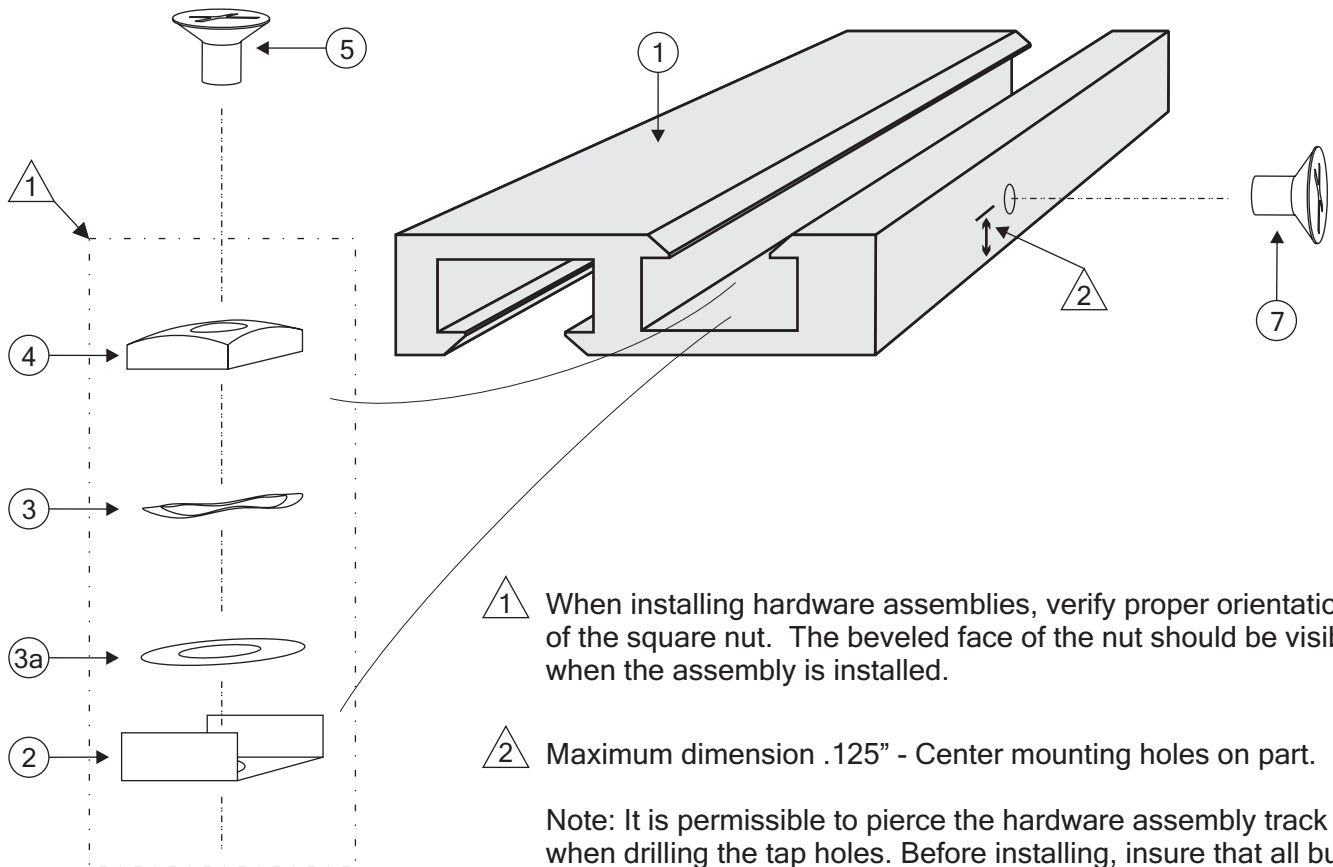


Please visit www.radorax.com for more information, including kit documents.





⚠ File or polish cut ends in the direction of the arrows to remove stress risers on the thin webs. Break sharp edges.



1 When installing hardware assemblies, verify proper orientation of the square nut. The beveled face of the nut should be visible when the assembly is installed.

2 Maximum dimension .125" - Center mounting holes on part.

Note: It is permissible to pierce the hardware assembly track when drilling the tap holes. Before installing, insure that all burrs are removed from the track. A small amount of lubricant applied to the hardware slot prior to final assembly is recommended.

Tip: Hand turn a 6-32 tap chunked in a drill press to achieve perfect thread alignment.

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|----|---------------|------------------------------|-----------|---------------------|----|
| 8 | NAS514P632-4P | 6-32 STEEL SCREW C/SUNK HEAD | - | 100 degree x .250 | 7 |
| 24 | NAS514P632-3P | 6-32 STEEL SCREW C/SUNK HEAD | - | 100 degree x .1875 | 5 |
| 24 | RP3030-P | 6-32 STAINLESS SQUARE NUT | - | .310 x .310 x .105 | 4 |
| 24 | RP3020-P | THREE-WAVE WASHER | Stainless | - | 3 |
| 24 | RP3010-P | SHIM WASHER | Stainless | - | 3a |
| 24 | RP3000-P | RETAINER | Stainless | .350 x .310 x .140 | 2 |
| 1 | RP1110-P | AVIONIC SUPPORT STRUT | 6061-T6 | .250 x 1.000 x 18.0 | 1 |

| QTY. | PART NO. | DESCRIPTION | MATERIAL | SIZE/SPEC | ITEM NO. |
|-----------|----------|---|---|--|----------|
| N/A | FAA/PMA | UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: DECIMALS: .XX ± .02 ANGLES: .XX ± .010 FINISH: N/A | CONTRACT NO. APPROVALS DATE DRAWN: M. J. Landes CHECKED: V. D. L'Esperance ENGINEER: M. J. Landes APPROVED: V. D. L'Esperance | Radiatorax Aviation Systems www.radiatorax.com RADIORAX 1115 SERIES STRUT ASSEMBLY DETAIL RDK1115-3 SCALE: NONE FILE: RDK1115-3revNC.cdr SHEET 1 of 1 | |
| NEXT ASSY | USED ON | APPLICATION | DO NOT SCALE ON DRAWING | REV. NC | |

| Revisions | | | |
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| REV | DESCRIPTION | DATE | APPROVED |
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