Radiorax Aviation Systems, Inc. 186 SW Camano DR, Camano Island, Washington 98282
Phone: (360) 651-1200 email: sales@radiorax.com

Installation Manual

for

Single Stack, Standard Rail Tray Mount Kit
RK1000

Document P/N RKD1000-2
Revision B

August 17, 2008

List of Revisions

Revision	Date	Description	Pages
NC	04/01/03	Original Disposition	All
A	08/19/03	Removed Experimental Kits, added hyperlinks	1,3
B	2008-08-17	PMA address change, text readability updates	All

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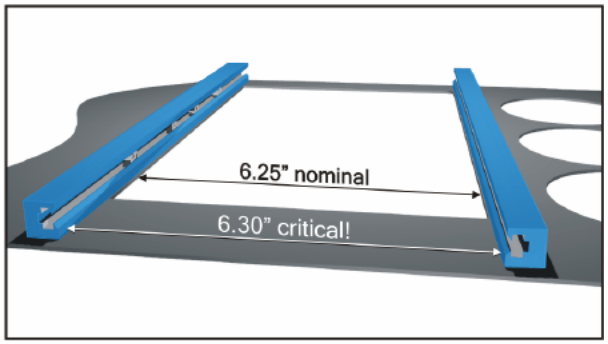
Introduction

Radiorax Tray Mount Support Rail Installation Kits provide a straightforward retrofit for almost any aircraft. The following documentation is provided to install the FAA/PMA Radiorax p/n RK1000 Single Stack, Standard Rail Kit in your aircraft.

Document #	Description	Used With: RK1000
RKD1000-1	Packing List / Certificate of Conformance	X
RKD1000-2	Installation Manual	X
RKD1000-3	Parts Manual	X
RKD1000-4	Instructions for Continued Airworthiness	X
SA01330LA	STC Front Sheet	X

General Notes

IMPORTANT! The distance between the faces (inside dimension) of installed Radiorax Tray Mount Rails **MUST** be **6.30 inches**. This spacing provides maximum compatibility with all avionic trays and facilitates the use of other Radiorax products, such as Radiorax **Tray Cams**, **Closeout Panels**, and **Dzus Adapters**.



Use the RK400 Installation Spacer Tool Kit for simple, precise alignment of the rails.

A. 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.

B. 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 where surfaces are use for grounding.

C. 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 RKD1000-3.

Removal of Existing Support Structure (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.

1.3 Remove the LH and RH tray attaching angles/devices from the instrument panel.

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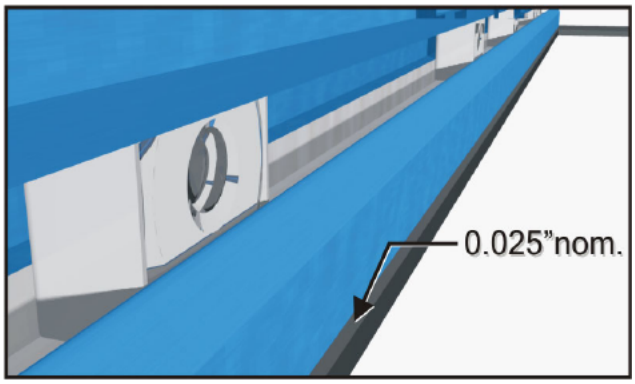
Assembly and Installation of Avionics Support Rails (Step 2)



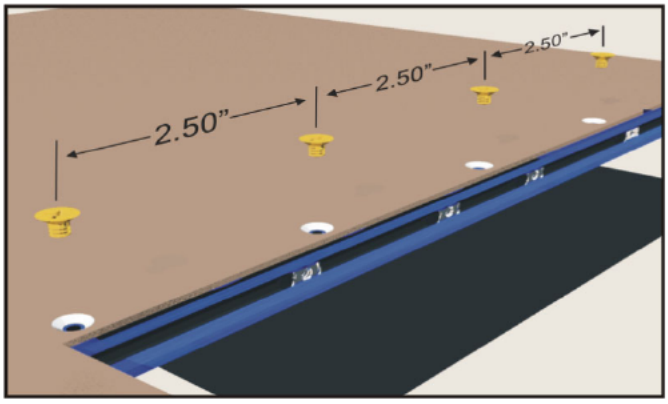
-The following guidelines are based on a 6.25" wide avionics bay cutout and 6.30" ID rail spacing. This provides a 0.025" lip to hide the avionics tray edges.

-The new rails are mounted to the instrument panel using the included structural NAS514P632-4P screws (item 7) or rivets (item 6). Refer to **RKD 1000-3 Parts Manual**

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 aircraft-forward-facing side of the rail when installed.**

2.2 Instrument panel/rail fastener hole pattern layout: **Reference RKD1000-3 Parts Manual for permissible fastener locations.** Temporarily fasten the LH and RH 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 Radiorax RK400 Rail Installation Spacer Kit to properly space and simplify installation.

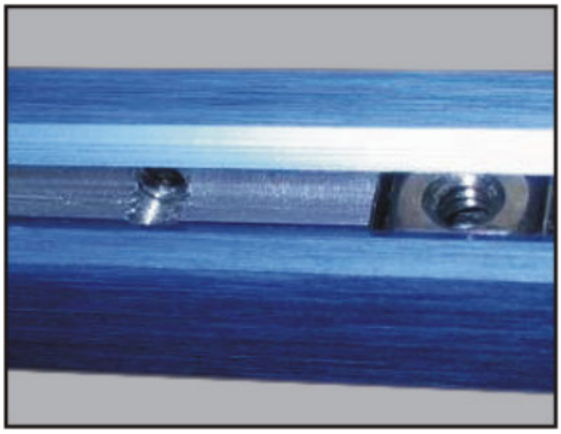


Verify that the rail p/n's are visible when installed.

SCREW/RIVET PITCH SHOULD NOT EXCEED 2.50"

-If using existing holes for mounting, mark their locations on the rail. A scribe or center punch works well for this task. Verify that the hole positions do not exceed the dimensions noted in the enclosed Parts Manual (RKD1000-3), and that the screw/rivet pitch is <= 2.50".

2.3 Drill and tap or rivet avionic support rails:
Holes should be within the dimensions listed for the LH and RH support rails (ref. RKD1000-3).
RIVETS: Drill a #30 hole in the rail at each fastener location.
SCREWS: Drill a #36 hole 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 in the slot, 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.
The rail attaching screw (item 7) will require trimming (in some installations) to avoid intrusion into the slot.

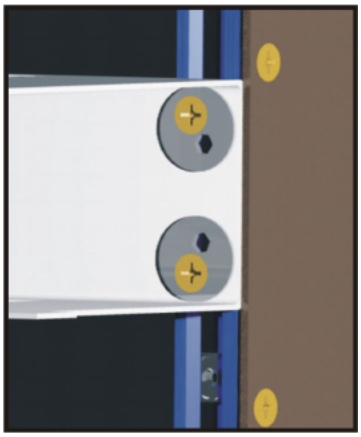


Assembly and Installation of Avionics Support rails (Step 2), cont.

2.4 Install Nut Assemblies: 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. Store extra hardware in the slot between used nut assemblies.

2.5 Install the LH and RH rails to the instrument panel:
SCREWS: Fasten rails using the screws (Item 7) supplied with the kit. A small amount of Loctite (or equivalent) may be used to secure the screws.
RIVETS: Fasten rails using the rivets (Item 6) supplied with the kit.

2.6 Install the avionics trays: Radiorax avionic support rails are designed to take advantage of the increased rigidity offered by using the included structural screws in dimpled tray-screw receptacles. Because of the integrity of mounting offered by this system, back-strapping the avionic trays is not necessary, provided the Radiorax support rails are affixed to structure which will bear the ultimate load factors for your aircraft.



For trays not supplied with countersunk holes, dimple each mounting hole with a #6 dimple-die, or equivalent means.

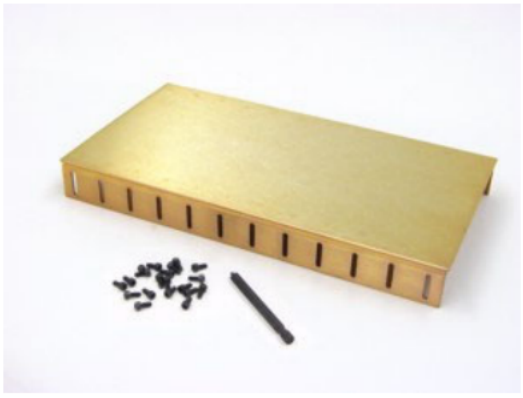
To achieve perfect face alignment in multiple avionics vendor stacks, use a Radiorax RK5000 Tray Cam Kit.

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 of 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.

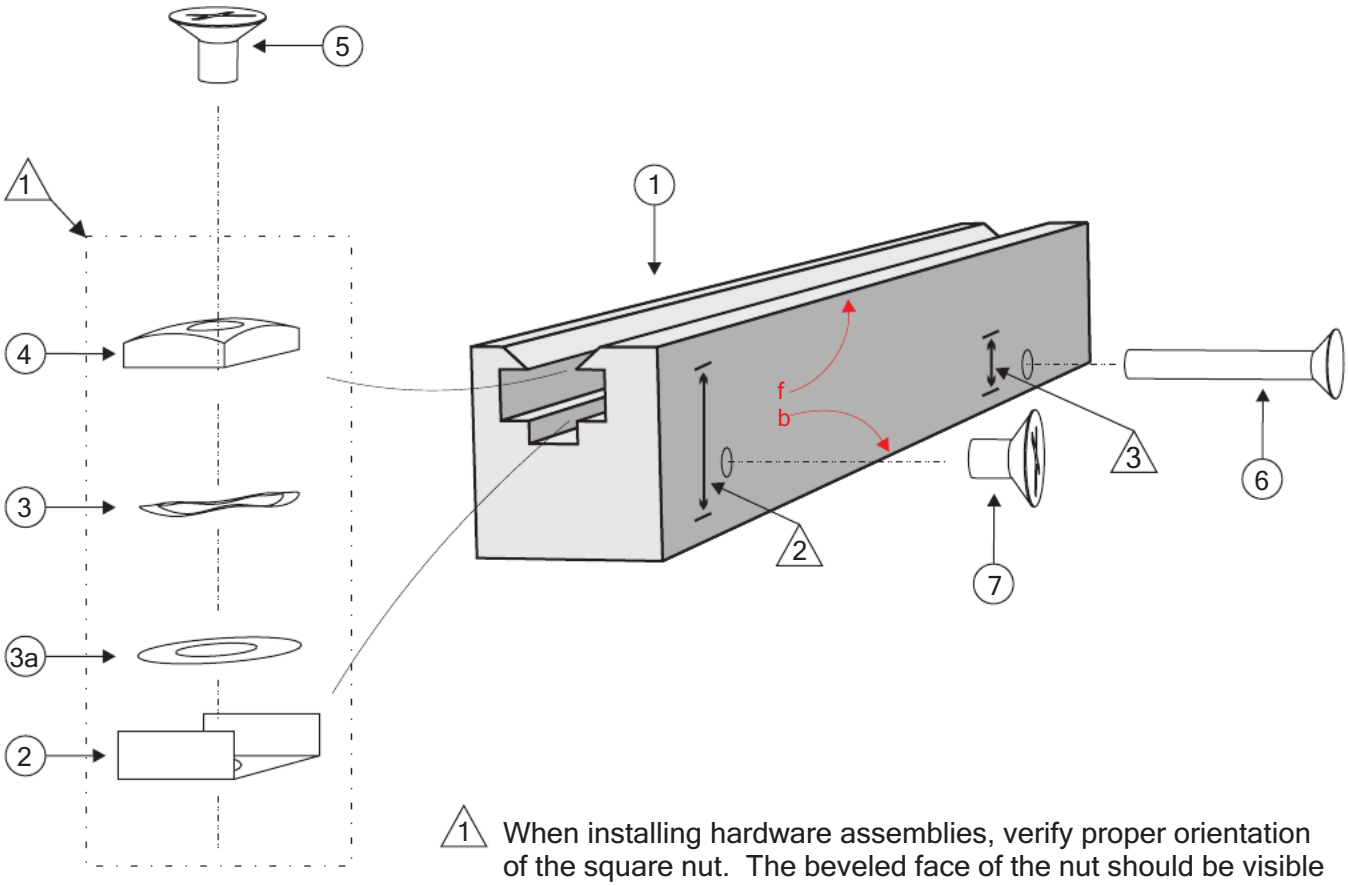
Each additional tray is mounted by positioning the nut assemblies, installing the mounting screws, sliding the tray into position beneath the last permanently affixed tray, and tightening the screws.

Nut assemblies for future use may be stored between the used hardware or grouped toward one end of the rail.
Use a Radiorax RK4000 Closeout Panel Kit to close out any remaining space.



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

Radiorax RP1000-P Tray Mount Rail: Parts and Installation Detail



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 Dimension Range (#6-32 Thread): 0.150" from 'b' - 0.150" from 'f'
If drilled area protrudes into the hardware slot, be sure track is clean and de-burred after tapping, and mount screw does not interfere with the hardware slot.
Tip: Hand turn a 6-32 bottom tap chucked in a drill press to achieve perfect thread alignment.

3 Dimension Range (-4 Rivet): 0.150" from 'b' - 0.350" from 'f'

QTY.	PART NO.	DESCRIPTION	MATERIAL	SIZE/SPECIFICATION	ITEM NO.
8	NAS514P632-4P	6-32 STEEL SCREW C/SUNK HEAD	-	100 degree x .250	7
8	MS20426AD4-14	7/8" #4 AD RIVET C/SUNK	-	-	6
18	NAS514P632-4P	6-32 STEEL SCREW C/SUNK HEAD	-	100 degree x .250	5
18	RP3030-P	6-32 STAINLESS SQUARE NUT	-	.310 x .310 x .105	4
18	RP3020-P	THREE-WAVE WASHER	Stainless	-	3
18	RP3010-P	SHIM WASHER	Stainless	-	3a
18	RP3000-P	RETAINER	Stainless	.350 x .310 x .140	2
1	RP1000-P	AVIONIC SUPPORT RAIL	6061-T6	.625 x .575 x 18.0	1

Revisions			
REV	DESCRIPTION	DATE	APPROVED
A	Minor drawing changes	07/08/02	M. Landes
B	Updated to new profile dimensions, amended parts callout and notes, changed drawing p/n from RD1015-X-4	02/09/03	M. Landes
C	Added shim washer to accommodate upgraded wave washer.	03/06/03	M. Landes

N/A	FAA/PMA
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
DECIMALS .XX .02 .XXX .010 ANGLES 0.30°
MATERIAL N/A
FINISH N/A
DO NOT SCALE ON DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN M. J. Landes	3/06/03
CHECKED V. D. L'Esperance	3/06/03
ENGINEER M. J. Landes	3/06/03
APPROVED V. D. L'Esperance	3/06/03

Radiorax Aviation Systems, Inc.
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TITLE: RADIORAX 1000 SERIES RAIL ASSEMBLY DETAIL
DWG. CODE: -
SIZE: D | CAGE CODE: | DWG. NO.: RKD1000-3 | REV.: C
SCALE: NONE | FILE: RKD1000-3revC.cdr | SHEET: 1 of 1