



Installation Manual

for

Triple Stack, Reduced Outer + Full Dimension Center Rail Tray Mount Kit RK3020

Document P/N RKD3020-2
Revision A

August 21, 2003

List of Revisions

Revision	Date	Description	Pages
NC	05/15/03	Original Disposition	All
A	08/21/03	Removed Experimental kits, split Dual/Triple Stack Installation Manuals, changed original RK3020 kit to RK3025, added hyperlinks	All

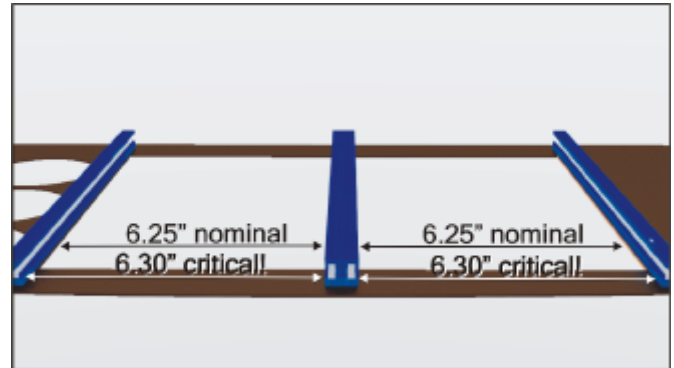
Introduction

The Radorax avionic support strut installation kit provides a straightforward retrofit for almost any aircraft. The following documentation is provided to install the Radorax p/n RK3020 Triple Stack, Reduced Dimension Outer + Full Dimension Center Kit in your aircraft.

Document #	Description	Used With: RK3020
RKD3020-1	Packing List / Certificate of Conformance	X
RKD3020-2	Installation Manual	X
RKD3020-3	Parts Manual	X
RKD3020-4	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 struts **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 for grounding.
- 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 items listed in RAS Parts Manual p/n RKD3020-3.

Removal of Existing Support Struts (Step 1)

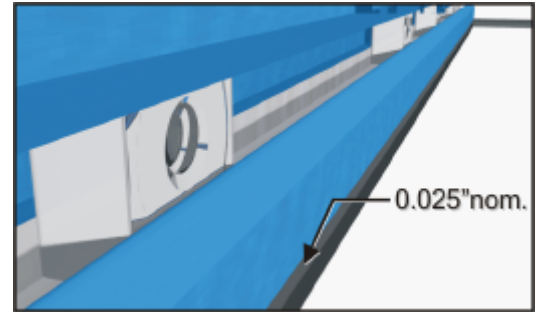
- 1.1 Remove avionics equipment from their trays. Remove screws attaching trays to the existing brackets. Remove all back-straps and attaching hardware supporting the forward end of the trays.
- 1.2 Remove any Pilot and Copilot instrument panel overlays.
- 1.3 Remove the LH and RH tray attaching angles/devices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

Assembly and Installation of Avionics Support Struts (Step 2)

-The following guidelines are based on 6.25" wide avionics bay cutouts and 6.30" ID (Face to opposing face) strut spacing. This provides a 0.025" lip to facilitate hiding the avionics trays.

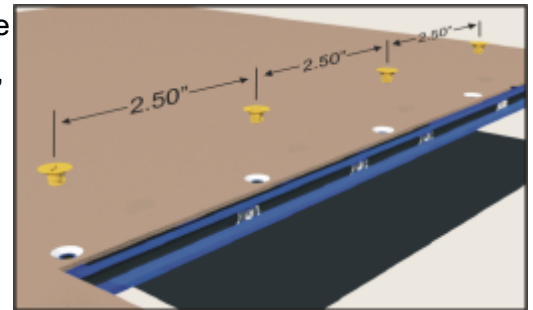
-The new struts are mounted to the instrument panel using the included structural NAS514P632-4P screws (item 7), or the MS20426AD4- rivets (item 6).

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



2.1 Cut struts to length. Match to the length of the removed LH angle, center U-channel(s) (angles), and RH angle, if applicable. Trim the struts so as to leave the engraved part number attached and on the aircraft-forward-facing (visible) side of the strut, when installed.

2.2 Instrument panel/strut fastener hole pattern layout. Reference the RKD3020-3 Parts Manual for permissible fastener locations. Temporarily fasten the LH, Center(s), and RH struts in place, 6.30" ID apart, and centered on the avionics bay cutouts. Verify an inside dimension of 6.30" between the strut faces. Use Radiorax RT400 Rail Installation Spacers to lock the struts together and to facilitate the installation of the struts as an assembly. Verify that the strut p/n's are visible.



SCREW/RIVET PITCH SHOULD NOT EXCEED 2.50".

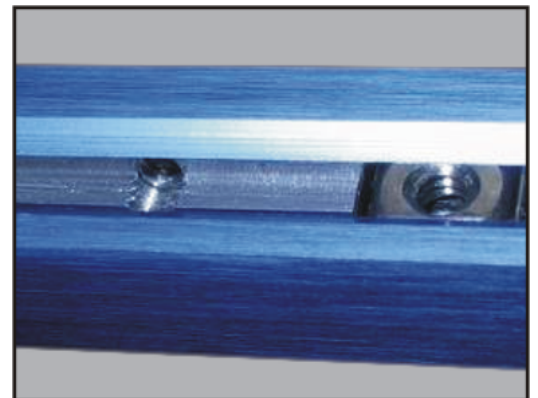
-If using existing holes for mounting, mark their locations on the strut. A scribe works well for this task. Verify that the hole positions do not exceed the dimensions noted in the enclosed Parts Manual (RKD3020-3), and that the screw/rivet spacing is $\leq 2.50"$.

Drill and tap and/or rivet avionics support struts.

Mounting holes should be within the tolerances specified on RKD3020-3.

RIVETS: Drill a #30 hole in the strut at each fastener location.

SCREWS: Drill a #36 hole at each fastener location. Thread each hole with a 6-32 tap. In regards to p/n RP1020-P : 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.



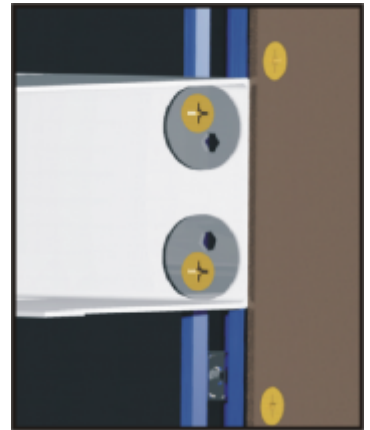
Assembly and Installation of Avionics Support Struts (Step 2), cont.

- 2.3 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 strut before final installation of the strut to the structure.
- 2.4 Install the LH, Center(s), and RH struts to the instrument panel.
SCREWS: Fasten struts 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 struts using the rivets (Item 6) supplied with the kit.
- 2.5 Install the avionics trays. Radorax avionic support struts 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 struts 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. To achieve perfect face alignment of all avionics, use Radorax RP5000-P [Tray Cams](#).

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.



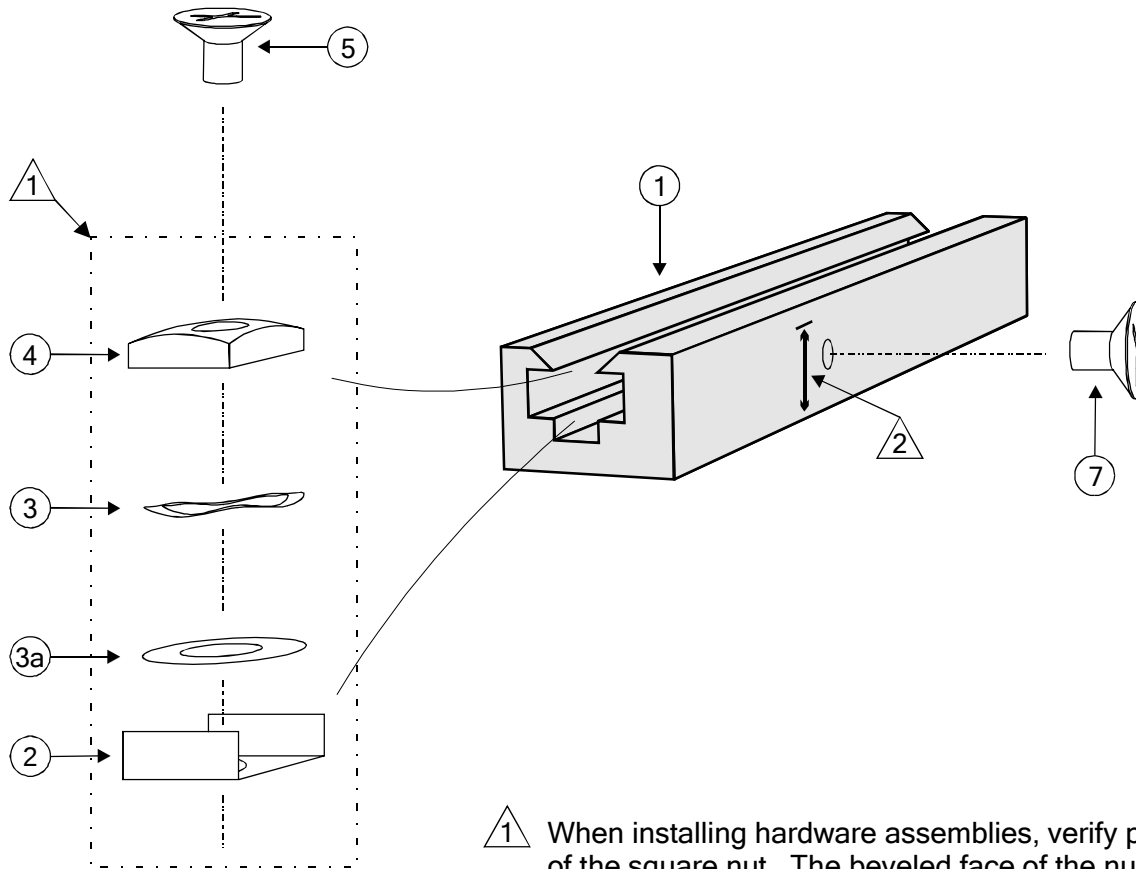
Each additional tray is mounted by positioning the nut assemblies, installing the mounting screws, sliding the tray into position beneath the last permanently affixed tray, and tightening the screws.

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

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.



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.

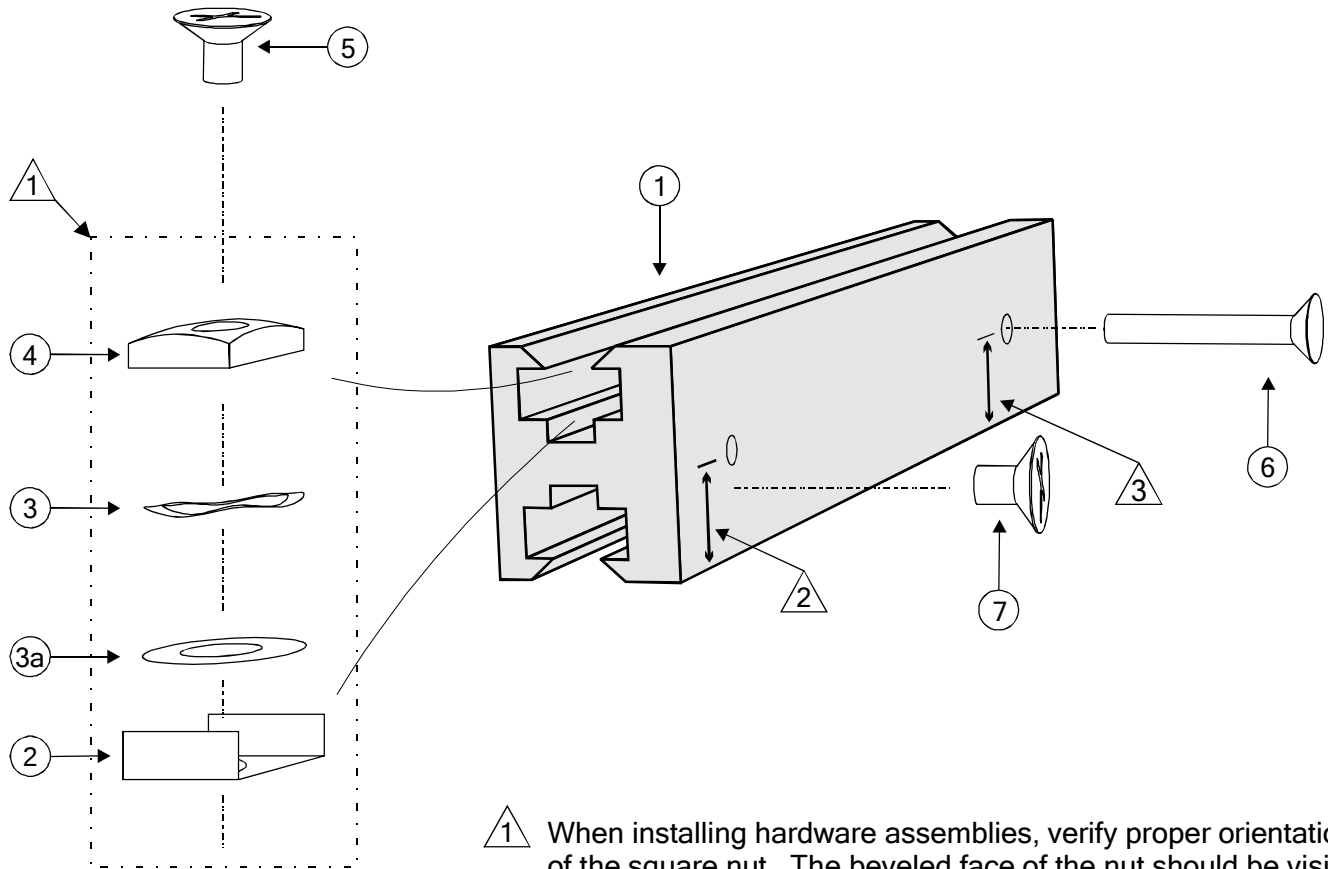
2 Maximum dimension .320"

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.

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

Revisions			
REV	DESCRIPTION	DATE	APPROVED
A	Added shim washer to accommodate upgraded wave washer.	03/07/03	M. Landes

8	NAS514P632-4P	6-32 STEEL SCREW C/SUNK HEAD	-	100 degree x .250	7				
12	NAS514P632-4P	6-32 STEEL SCREW C/SUNK HEAD	-	100 degree x .250	5				
12	RP3030-P	6-32 STAINLESS SQUARE NUT	-	.310 x .310 x .105	4				
12	RP3020-P	THREE-WAVE WASHER	Stainless	-	3				
12	RP3010-P	SHIM WASHER	Stainless	-	3a				
12	RP3000-P-4	RETAINER	Stainless	.350 x .310 x .140	2				
1	RP1020-P	AVIONIC SUPPORT STRUT	6061-T6	.385 x 1.000 x 18.0	1				
1	RP1020-X	AVIONIC SUPPORT STRUT	6061-T6	.385 x 1.000 x 18.0	1				
QTY.	PART NO.	DESCRIPTION		MATERIAL	SIZE/SPECIFICATION	ITEM NO.			
N/A	EXPERIMENTAL FAA/PMA	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		Radiator Aviation Systems www.radiator.com					
		DECIMALS ANGLES .XX + .02 ±.50' .XXX ±.010		APPROVALS		DATE			
		MATERIAL N/A	DRAWN	M. J. Landes	3/07/03	TITLE	DWG. CODE		
			CHECKED	V. D. L'Esperance	3/07/03	RADIORAX 1020 SERIES STRUT ASSEMBLY DETAIL	-		
			ENGINEER	M. J. Landes	3/07/03				
			FINISH	N/A	APPROVED	V. D. L'Esperance	3/07/03		
NEXT ASSY	USED ON	DO NOT SCALE ON DRAWING		V. D. L'Esperance	3/07/03	SCALE	NONE	FILE: RKD1020-3revA.cdr	SHEET 1 of 1



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 .350" +/- 0.15"
Tip: Hand turn a 6-32 bottom tap chunked in a drill press to achieve perfect thread alignment.

3 .350"
Center #30 holes on part.

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
24	NAS514P632-4P	6-32 STEEL SCREW C/SUNK HEAD	-	100 degree x .250	5
24	18-8SS	6-32 STAINLESS SQUARE NUT	-	.310 x .310 x .105	4
24	RP3020-P-4	THREE-WAVE WASHER	Stainless	-	3
24	RP3030-P-4	SHIM WASHER	Stainless	-	3a
24	RP3000-U-4	RETAINER	Stainless	.350 x .310 x .140	2
1	RP1100-P	AVIONIC SUPPORT STRUT	6063-T6	.700 x .575 x 18.0	1
1	RP1100-X	AVIONIC SUPPORT STRUT	6063-T6	.700 x .575 x 18.0	1
QTY.	PART NO.	DESCRIPTION	MATERIAL	SIZE/SPECIFICATION	ITEM NO.

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A	Added shim washer to accommodate upgraded wave washer.	03/06/03	M. Landes

N/A	EXPERIMENTAL FAA/PMA	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMALS ANGLES .XX + .02 -0.50° .XXX ± .010	CONTRACT NO.		Radiator Aviation Systems www.radiatorax.com					
			APPROVALS		DATE		TITLE		DWG. CODE	
			DRAWN M. J. Landes		5/13/03		RADIORAX 1100 SERIES			
			MATERIAL N/A		CHECKED V. D. L'Esperance		5/13/03		STRUT ASSEMBLY DETAIL	
FINISH N/A		ENGINEER M. J. Landes		5/13/03		SIZE D	CAGE CODE	DWG. NO.	REV. A	
NEXT ASSY	USED ON	DO NOT SCALE ON DRAWING	APPROVED V. D. L'Esperance		5/13/03		SCALE NONE		FILE RKD1100-3revA.cdr	SHEET 1 of 1
APPLICATION										