

RT-Strut

Mounting
Pole
for the
RT3000



User Manual

Confidently. Accurately.

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Introduction

The RT-Strut is a fast car mounting system for the RT3000 family of Inertial and GPS Navigation Systems. Using the RT-Strut the RT3000 can be mounted securely in most cars in minutes. (Please note that the RT-Strut is also compatible with all RT2000 and RT4000 systems).

The RT-Strut wedges between the floor and the roof of the car, normally in front of the back seat and across the transmission tunnel. A built-in spring provides the necessary force required to keep the RT-Strut in place. A lever is used to release and engage the spring. Wide feet at the bottom of the RT-Strut ensure excellent yaw rigidity.

The RT-Strut uses a carbon fibre Pole for an extremely stiff yet lightweight design.

Figure 1. RT-Strut Mounted in a Car



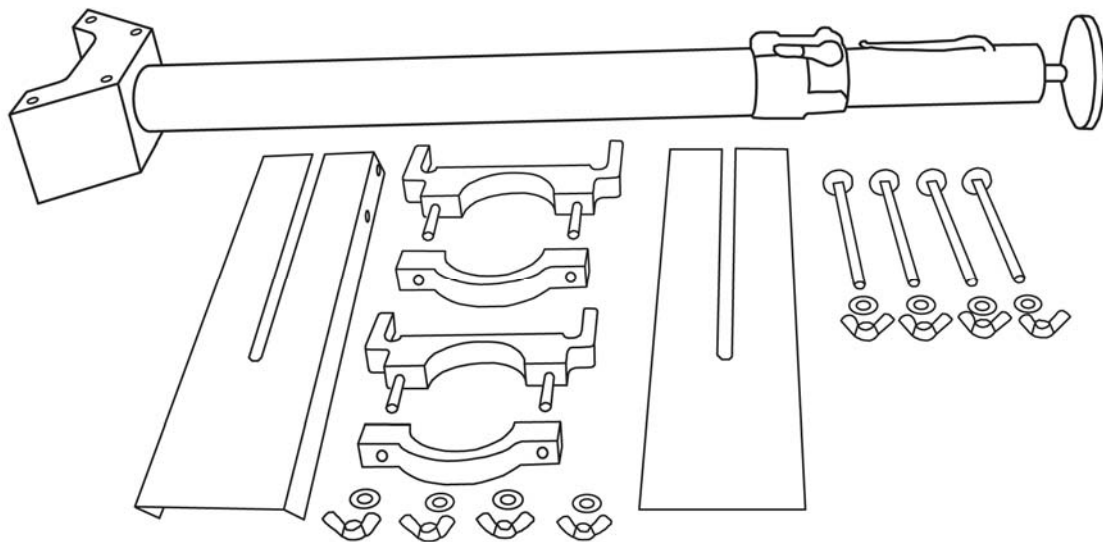
Scope of Delivery

Table 1, below, lists all the items that are delivered with each RT-Strut.

Table 1. Summary of the RT-Strut Components

Qty	Description
1	RT-Strut
2	Extension Feet
2	RT3000 Mounting Brackets
2	Pole Clamps
8	M8 Wing Nuts
8	M8 Washers
4	M4x16 RT3000 Screws
4	M8x110 Carriage Bolts
1	3mm Allen Key

Figure 2. RT-Strut Components



Specification

The technical specification of the RT-Strut unit is shown in Table 2, below.

Table 2. Technical Specification

Parameter	Specification Normal Version	Specification Extended Version
Weight	3.7kg (including extension feet)	5.5kg (including extension feet)
Maximum Extension	1.50m	2.40m
Minimum Extension	1.05m (using extension feet) 0.81m (excluding extension feet)	1.60m (using extension feet) 1.30m (excluding extension feet)
Temperature Range	-10° to +70°C	-10° to +70°C

Warranty

Oxford Technical Solutions Limited warrants the RT3000 products to be free of defects in materials and workmanship, subject to the conditions set forth below, for a period of one year from the Date of Sale.

‘Date of Sale’ shall mean the date of the Oxford Technical Solutions Limited invoice issued on delivery of the product. The responsibility of Oxford Technical Solutions Limited in respect of this warranty is limited solely to product replacement or product repair at an authorised location only. Determination of replacement or repair will be made by Oxford Technical Solutions Limited personnel or by personnel expressly authorised by Oxford Technical Solutions Limited for this purpose.

In no event will Oxford Technical Solutions Limited be liable for any indirect, incidental, special or consequential damages whether through tort, contract or otherwise. This warranty is expressly in lieu of all other warranties, expressed or implied, including without limitation the implied warranties of merchantability or fitness for a particular purpose. The foregoing states the entire liability of Oxford Technical Solutions Limited with respect to the products herein.

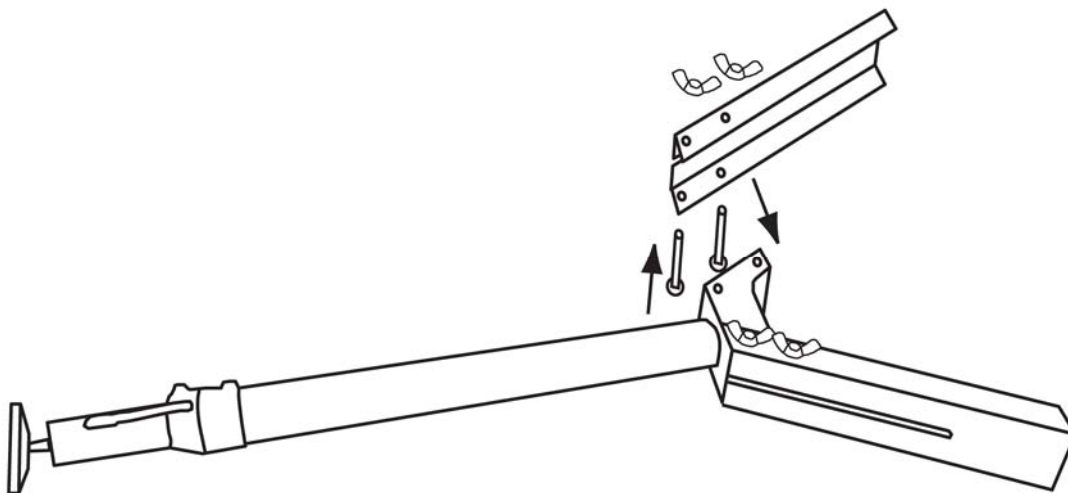
Installation

It is best to fit the RT3000 to the RT-Strut after the RT-Strut is mounted in the vehicle. Although the RT3000 is a robust system high shocks, such as dropping or impacts against metal objects will cause high shocks and may damage the RT3000.

The Extension Feet have some edges that may be sharp. These help the feet to grip the carpet. Take care not to injure yourself on the sharp edges.

Fit the Extension Feet to the base of the RT-Strut using the M8x110 Carriage Bolts provided, see Figure 3, below. Fit the M8 Washers and M8 Wing Nuts to the Carriage Bolts and tighten. The Carriage Bolts have a square section at the top so that they cannot rotate when the Wing Nut is tightened.

Figure 3. RT-Strut Attaching the Extension Feet



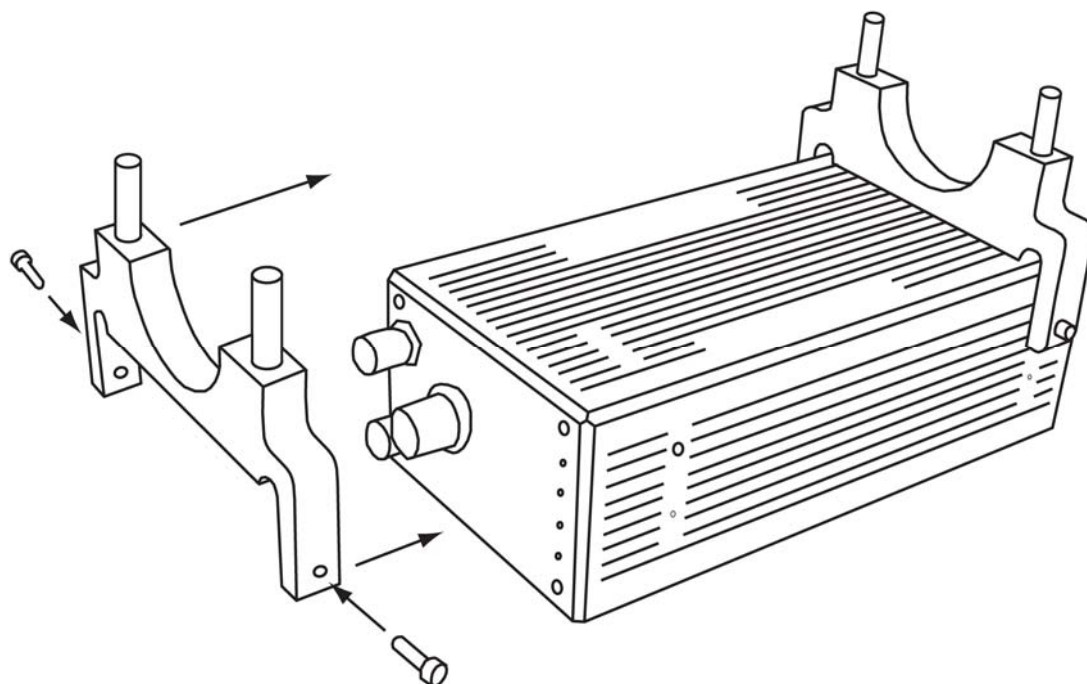
It is possible to use the RT-Strut without fitting the Extension Legs. However, the Extension Legs provide additional yaw stiffness; if slip angle or yaw rate is important then the Extension Legs should be used.

Open the catch on the Carbon Fibre Pole and push the Pole down to its minimum height. Fit the RT-Strut inside the car and extend the Pole up to the roof. Open the lever at the top to compress the spring. Extend the Pole hard against the roof of the car and close the clamp on the Pole. Release the lever carefully, minding your fingers, to allow the spring to push on the roof. Occasionally the catch on the Carbon Fibre Pole needs adjusting. Look for the +/- arrows on the nut next to the catch. Turning it towards the + sign will tighten the catch which will stop the Carbon Fibre Pole from becoming loose and sliding down.

Check that the RT-Strut is secure and cannot vibrate.

Next fit the RT3000 Mounting brackets on to the RT3000, see Figure 4, below.

Figure 4. RT3000 Mounting Brackets to the RT3000

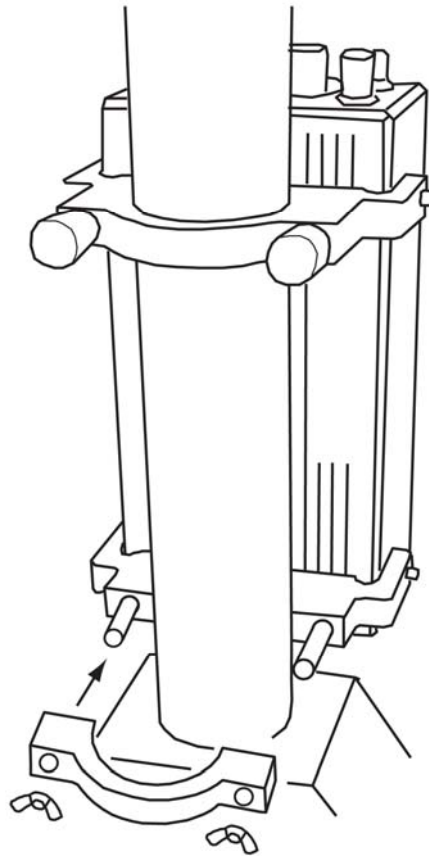


Fit the RT3000 Mounting Brackets to the Pole.

Although the Carbon Fibre Pole is very stiff, mounting the RT3000 as low as possible minimizes the accelerations caused by any bending of the Pole.

Fit the RT3000 to the Mounting Brackets using the Pole Clamps, the M8 Washers and the M8 Wing Nuts provided. The default orientation, when using the RT-Strut, is to have the main connector of the RT3000 facing up and the GPS Antenna connectors to the right in the car. In the default orientation the X-axis points Down, the Y-axis point Right and the Z-axis points backwards in the car. Align the RT3000 in the vehicle as accurately as possible to minimize Slip Angle offsets.

Figure 5. Attaching the RT3000 to the RT-Strut

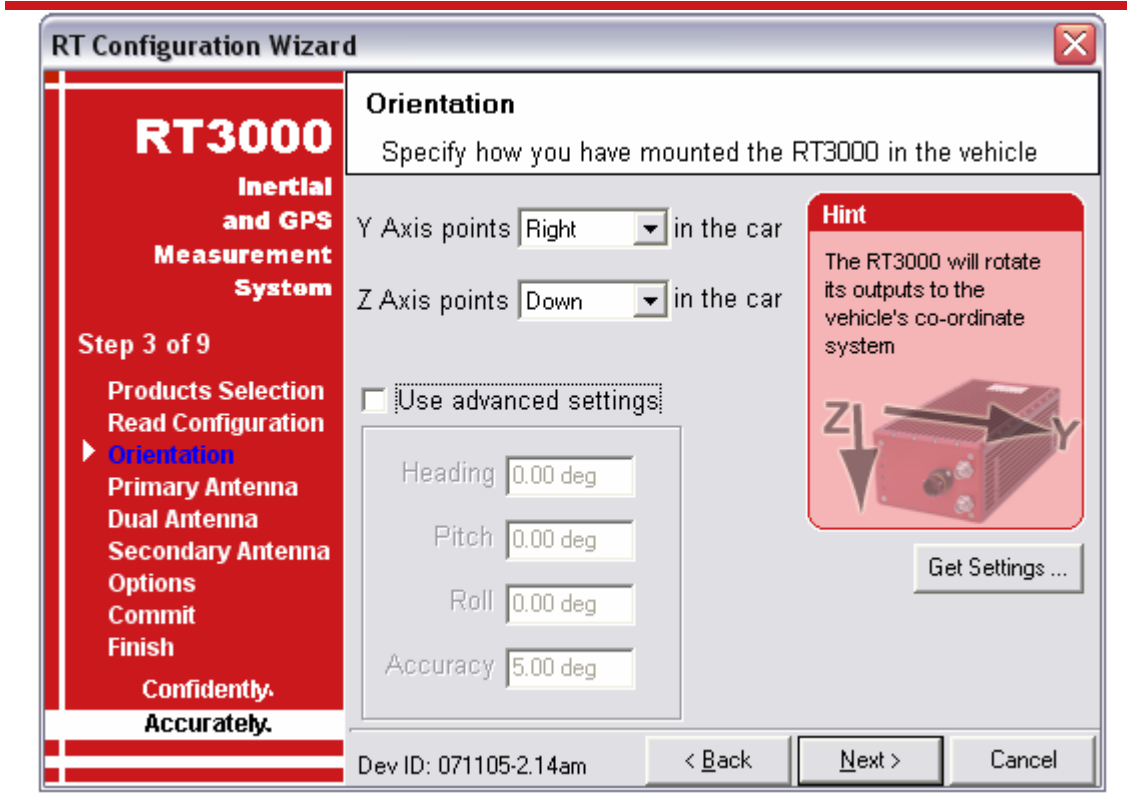


Finally, tighten the Screws on the Mounting Brackets.

RT3000 Configuration

After mounting the RT3000 in the vehicle is it essential to use the RT3000 configuration software to tell the RT3000 what orientation it is in. Run the RT3000 configuration software and change the values on the Orientation Page to match the installed orientation being used. Also check the position of the GPS antenna, and Dual-Antenna values, since these may also be wrong in the new orientation.

Figure 6. Orientation Page of RT3000 Configuration Software



Revision History

Table 3. Revision History

Revision	Comments
041004	Initial Version
050503	Updates for RT-Strut Rev. 2
070312	Updated images
071122	Updates.
