



Rudder Pedal Kit
Assembly Manual

V1.0 July 2010.

Introduction:

Thank you for your purchase of our Boeing 737 Rudder Pedal Kit. We hope you will have many years of faithful service from our product.

Our product has been carefully designed to replicate the appearance and performance of the actual Boeing Rudder Pedal Assembly.

In this manual, we will take you through each step of the assembly process in easy steps that will allow you to construct your kit to the highest possible standard.

Please read each section before attempting that step in the assembly so that you completely understand what is required.

Once assembled, you can then proceed to connection and calibration for use in the simulator of your choice.

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**For Simulation Only
Not To Be Used In
Real Aircraft**

Tools You Will Need:



3, 4, 5 and 6mm Allen Wrenches

8, 10, 13 & 17mm Spanners

13mm Socket & Wrench

Countersink Bit

Fine & Medium Point Crosshead (Philips) Screwdrivers

Small Clamp

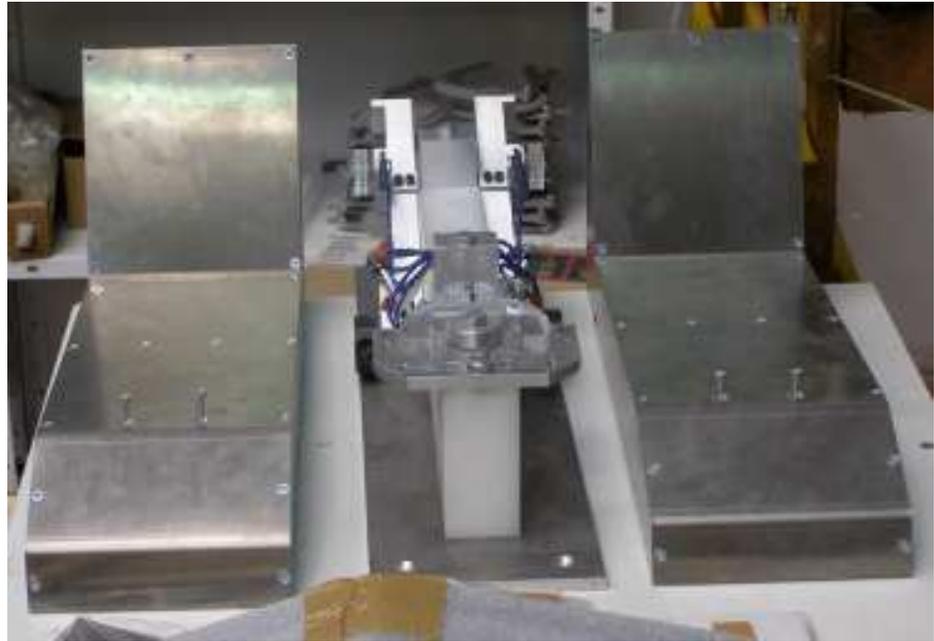
Ruler or Tape Measure

Grease to Lubricate the Moving Parts



**SAFETY FIRST
Parts & Tools Injure
THINK SAFETY**

Unpacking:



Ok, so you have opened the carton that your kit has been transported in. Inside you will find several packaged items which are numbered from 1 to 10, containing the component parts of your Kit. You will also see that the Rudder Base Component and the two footrests have already been assembled for you.

- No.1 = Bottom Front & Rear Side Blocks
- No.2 = Rudder Pedal Arm / Brake Springs x 6 & Fixing Bolts
- No.3 x 2 = Pedal Assemblies Left and Right
- No.4 = Brake Operating Shaft Locking Collars & Nylon Wear Washers
- No.5 = Left & Right Internal Sidewall Panels
- No.6 = Left & Right Outer Sidewall Panels
- No.7 = Inner Top Support Plate
- No.8 = Outer Top Cover
- No.9 = Inner Front Support Plate
- No.10 = Lower Front Cover Plate

Put the Footrests to one side for now because they are the last item to be fixed. We will be working with the Rudder Base Component first.

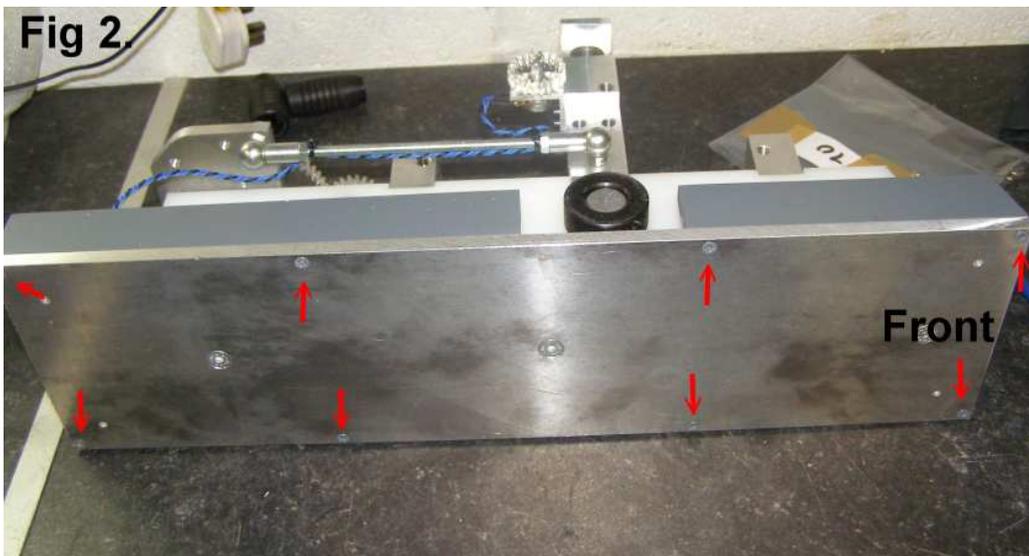


Step 1. Attaching the Rudder Pedal Lever Arm Rods.

When you took delivery of your kit, the Rudder Pedal Lever Arm connecting rods (Red Arrow) and the Potentiometer leads will have been attached to the main body for transport. Remove the tape and attach the connecting rods to the Bell Crank through the holes marked with a White Arrow as shown in Fig.1. Using a 10mm spanner tighten the nuts securely. Once this has been done, move the Rudder Pedal Lever Arms backwards and forwards to ensure that you have no 'tight spots' and that the transfer gear runs smoothly on the potentiometer gear. In production quality control, we will have marked the two gears with index marks. Please make sure that as the gears move, both index marks are synchronised with each other as they rotate. At this point, you may like to apply a small amount of grease to the arc cutout in the Bell Crank and also to the ball joint ends of the connecting rods.

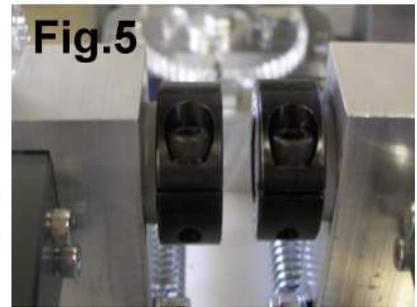
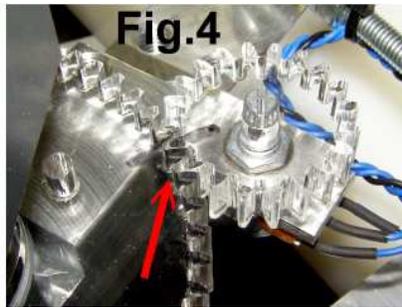
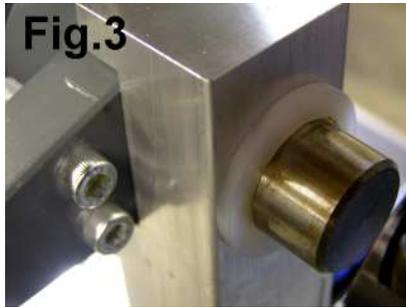
Step 2. Attaching The Side Blocks.

Item #1 contains 4 sidewall blocks. Two short and two long. You will notice that the two short blocks have an angled edge which are attached with the angled edge to the front. Fix the four blocks to the baseplate with a fine point Crosshead screwdriver through the pre-drilled holes as shown in Fig.2.



Step 3. Fitting The Pedal Units

Item #3 (x2) contain the Left and Right Rudder/Brake Pedals. Item #4 contains the Nylon Wear Washers and Locking Collars for the Pedal Support Shafts. Take the Left Pedal and ensure the Support Shaft is fully pushed into the Pedal. You may care to add a little lubricant to the inside edge of the shaft. Place the centre shaft through the large machined hole in the Pedal Lever Arm as shown in Fig.3. The pedal assembly is fitted with a Brake Pedal Spring fulcrum lever and a drive gear for the Brake potentiometer. Carefully push the Pedal inwards ensuring that the fulcrum lever sits inside the limit cutout on the Lever Arm as shown in Fig.3 and at the same time that the two drive gears as mated so that the two index marks align as shown in Fig.4 by the Red Arrow.



Finally, place a Nylon Wear Washer onto the Pedal Shaft as shown in Fig.3 before finally fitting the Locking Collar onto the Pedal Support Shaft. Using a 5mm Allen Key, tighten the bolt in the Locking Collar to fix the pedal in place as shown in Fig.5. At this stage, we recommend that you check that there is no 'side to side' movement in the Pedal and that it moves freely on it's axis and is driving the Potentiometer Gear. Now repeat the procedure to assemble the other Pedal onto it's Lever Arm.

Step 4. Fitting The Brake Pressure Springs

Item #2 contains 6 springs and all the Fixing Bolts to attach them. Take two springs and two 6mm Allen Bolts from the bag.

Look at Fig.6 and identify the upper threaded hole on each Lever Arm as indicated by the Red Arrow. Place one of the Allen Bolts thru the eye on the end of the spring and screw it into place on both of the Lever Arms as shown in Fig.7. Please ensure that the spring sits against the lever arm properly. Because of the construction of the spring coil, one side has more space than the other side. Place the spring so that the side with the greater space is placed against the Lever Arm. This means the springs will fit 'squarely'. Do not tighten yet.



Using a 17mm spanner remove the two Nylok nuts as indicated in Fig.8 on the end of the end of the Fulcrum Lever spring anchor bolts.

At this point, we would recommend that you enlist the help of a friend, colleague or even your wife because we are going to stretch the springs and fit them onto the bolts at the end of the Brake Pedal Fulcrum Levers. They are very strong springs and can be difficult to place working on your own.

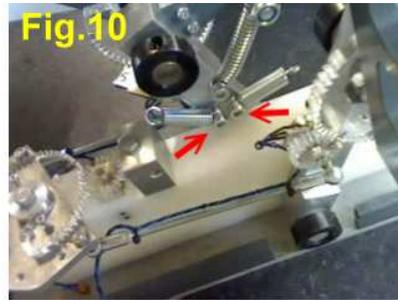
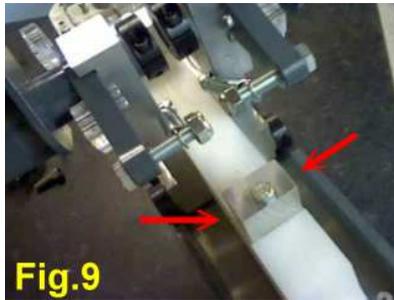
Stretch the spring using a Hook or Fine Nosed Pliers and place the eye on the spring onto the anchor bolt making sure that the springs are placed in a position on the bolt so that they are 'square' as shown in Fig.8. Operate each Brake Pedal a number of times to satisfy yourself that the springs are working and seated correctly. Finally, tighten the 6mm Allen bolts into the Lever Arm and check the function of the return springs.

Step 5. Fitting the Rudder Pedal Tension Springs.

In the Bag marked Item #2, you will still have four springs and four 6mm Allen bolts remaining. These are the Rudder Pedal Tension Springs and the bolts to fit them.

On the centre Delrine Block, fore and aft of the Lever Arms, there are two aluminium spring anchor blocks fitted as indicated in Fig.9. These anchor blocks have a threaded hole machined into them on each side.

Take two of the Tension Springs and attach them to the two remaining threaded holes in each of the Lever Arms as shown in Fig.10. Please bear in mind what we said about the spring having more space at the eye on one side in the previous section when fitting.



Once the springs have been attached to the Lever Arm, we then have to stretch the springs and bolt them to the anchor block as shown in Fig.11.

Again, we would recommend enlisting the help of a colleague when attempting this as these are very heavy springs and can cause some problems undertaking this operation if you are working alone.

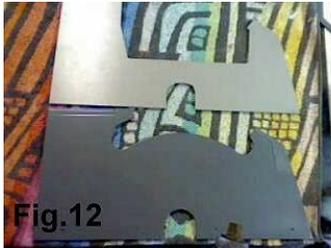
Once you have achieved this, that's it. All the mechanical assembly is complete and you should have a working assembly looking like this.



Step 6. Fitting The Covers

Identify and select both the Left & Right Inner and Outer Sidewall Panels as shown in Fig.12. With each side in turn, place an Outer Panel over the Inner Panel so that they lay together neatly at all common edges and clamp as shown in Fig.13.

Next drill a small Pilot Hole of 1.5mm through each of the predetermined screw holes in the bottom of each side panel as indicated by the red arrow in Fig.14. Place to one side.



Next find item 7, the inner top cover support plate & item 8, the Outer Top Cover Plate as shown in Fig.15. Place the white inner support plate neatly under the Outer Cover so that it's edges match those of the Outer Cover as shown in Fig.16. Use your clamp to hold them together while you make 6 pilot holes through the top cover into the support plate as in Fig.17. Use the 6 screws provided to attach the two plates together.



Once you have done this, we will now attach the 2 Top Sidewall Covers. These are the panels shown in Fig.18. Place one of the covers in place, so that the 3 pre-drilled holes in it align with the centre of the Top Cover Support Plate and mark with a pencil as in Fig.19. Drill 3 pilot holes in the Inner support Plate before attaching the top side cover with the screws provided. Repeat for both sides.



Note: Now you have the major parts assembled, at this point we recommend that you have a 'Practise Assembly', so you understand how the components fit together. With the panels correctly placed in relation to each other, we will also prepare for final fitting by marking up the position of the side panels in relation to the baseplate.



Place the two side panels against the baseplate and clamp roughly in position. For correct positioning, move the side panel so that the cutout in the lower edge is central in relation to the lever arm shaft clamp block.

Fit the top cover and ensure that the fixing parts fit nicely into the recesses in the sidewall. Once this is achieved, this is the position where the covers will fit onto the rudder pedal assembly.

Final Fixing of the Covers.



When you are completely satisfied that the sidewall is correctly placed, mark a pencil line on the sidewall block as in Fig.21. Take the dimension from the rear of the sidewall block to the edge of the sidewall panel itself shown in Fig.22. Transfer this dimension to the other side. This ensures that your covers will fit evenly and 'square'.



Remove the outer sidewall panel and with the inner panel correctly in place, mark two holes both fore and aft of the lower cutout in the panel. Use a dimension of 25 – 30mm as shown in Fig.24. Make sure you avoid the pilot holes we drilled earlier. Drill and countersink the 4 holes each side and fix the inner sidewall to the sideblock as in Fig.26.



Item 9 is the Top Cover Front Support Plate. Clamp it in position so that it is flush with the front edges of the sidewall panel and that its top front corner lines up with the top front corner of the sidewall. Mark a line half way up. Drill and fix the support plate to the sidewalls with the two screws provided as in Fig.28 and 29.



Note: At this point, you may like to think about fixing your Pedals. Although access to the rear fixing screws is possible with the covers fitted, the front fixing holes are enclosed. So, now would be a good time to put your Rudders in place to mark up and drill the final fixing holes.

Ok, let's fix the outer panels in place. Take an outer Sidewall Panel and place it in position against the inner panel so that the four pilot holes line up. Clamp it to prevent it moving. Take four of the small screws supplied and fix the panel in place. Repeat for the other side.



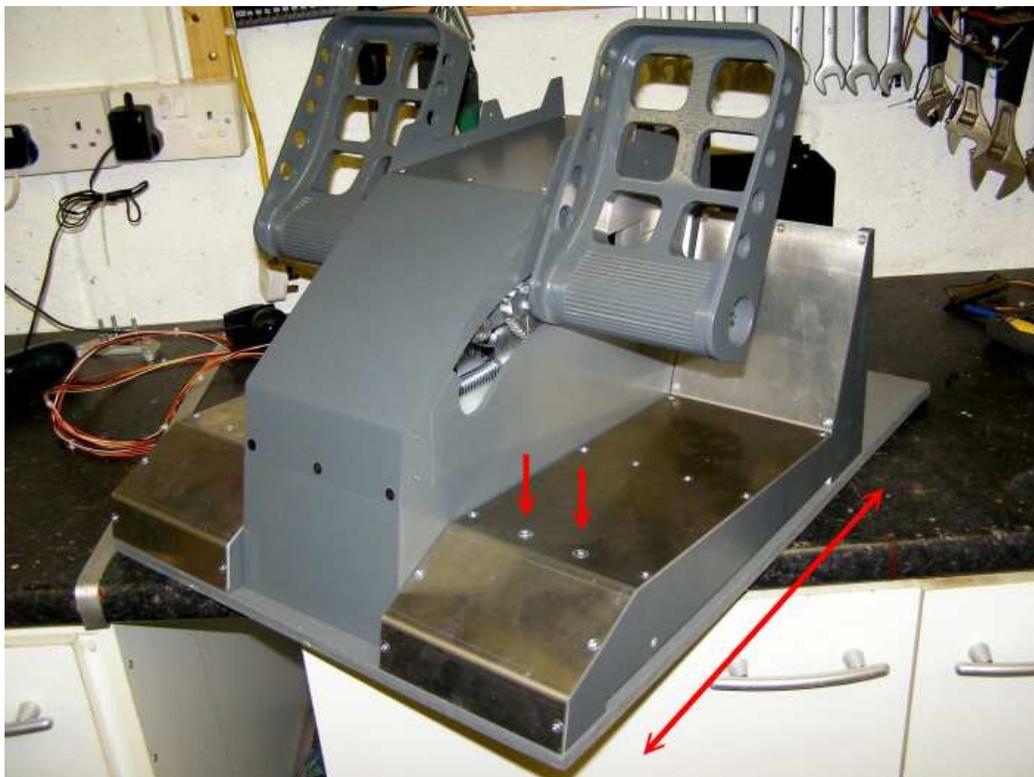
Place the top cover in place making sure that it fits neatly at all the four contact points at the rear and front of the sidewall panel. Using eight of the small screws supplied, fix the top cover to the sidewall panel front and back, both sides.



Press the front of the Top Cover down so that it fits neatly against both sidewall panels and the front support piece. Drill a pilot hole through the centre pre-drilled fixing hole and attach using one of the supplied screws. Finish by fixing the two side screws in place.



All that remains is to fix the front Lower Panel in place. There two options here. Drilling and screwing in place or using Contact Adhesive. Whatever you choose, please bear in mind that this panel needs to be fixed last of all after you have secured the front fixings.



All that remains to be done now is a 'final placing' of the Footrests. We have designed these to be adjustable so that our Rudder Pedals can be used with most types of Yoke such as ACE & PFC etc.

Position the footrests where you want them to be before fixing down with the two screws indicated at the front of the Footrest unit.

Thank you for your purchase of our product and we hope you will have many years of faithful service from your new Revolution Simproducts Rudder Pedals.



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