

RUDDERSAFE

INSTALLATION MANUAL

Ruddersafe Volvo Penta Type

For Volvo Penta 280/290 stern drives and duoprops

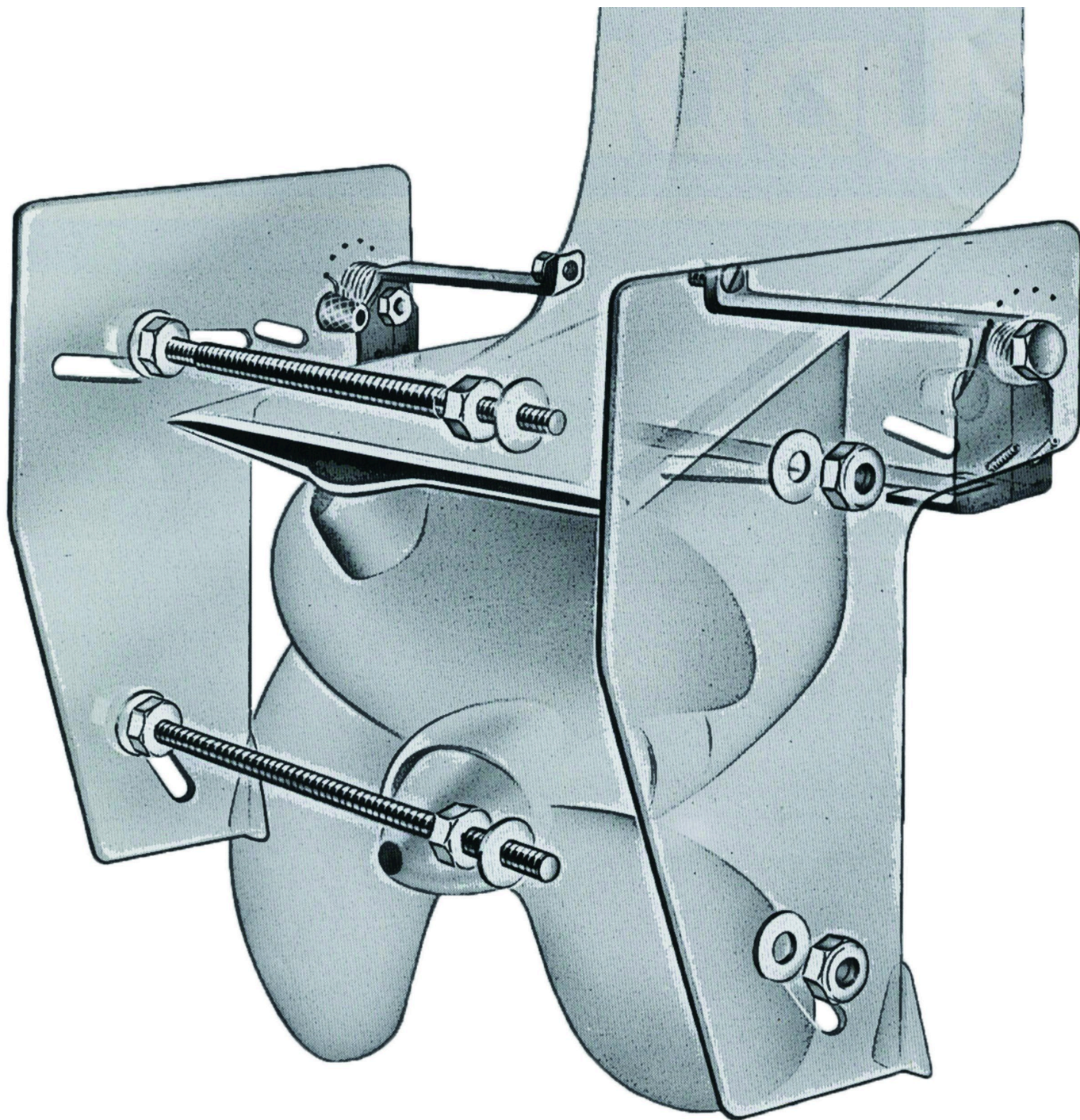
The dual rudder for better steering at low speed and in reverse

EN

Language
English

More information and support

Questions about installation or the right type? Visit ruddersafe-shop.com or e-mail info@ruddersafe-shop.com.



Before you start

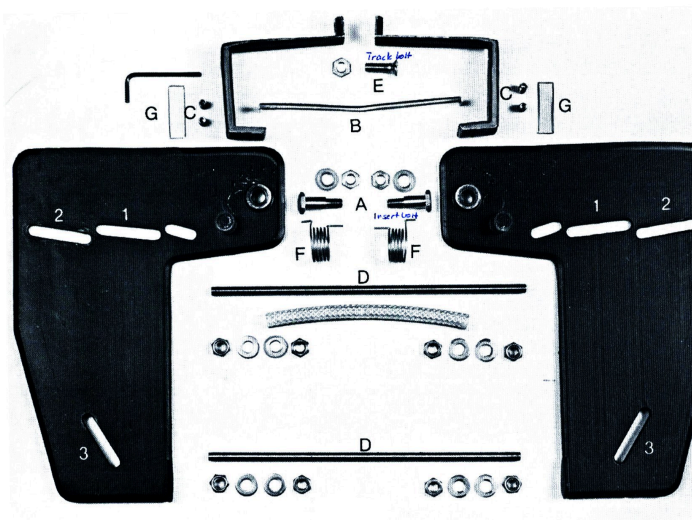
1. Read the complete manual before you install the Ruddersafe and follow the instructions carefully.
2. Check the contents of the box against the parts shown in this manual.
3. The letters and numbers in the instructions refer to the parts and holes shown on the parts page.
4. Installation takes about 20 minutes. No drilling is needed in the boat, the cavitation plate or the engine.
5. Switch the engine off and make sure it cannot be started during installation.



IMPORTANT: tighten the brackets by hand only

Always tighten the bolts and screws of the Ruddersafe brackets by hand with an ordinary spanner or the supplied hex key. Never use a power tool, such as a cordless drill or impact wrench, and do not overtighten. Overtightening can damage the brackets or make them break. Firm is firm.

Parts (supplied)



Tools you need (not supplied)

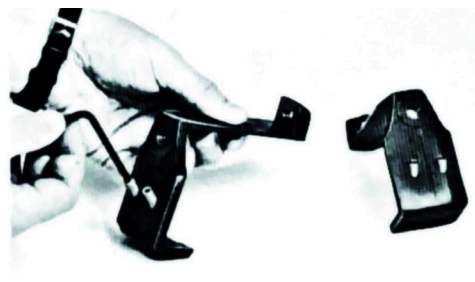
Ring or open-end spanner, adjustable spanner, water pump pliers, folding rule and screwdriver.

Hand tools only: no power tools.



ASSEMBLY INSTRUCTIONS

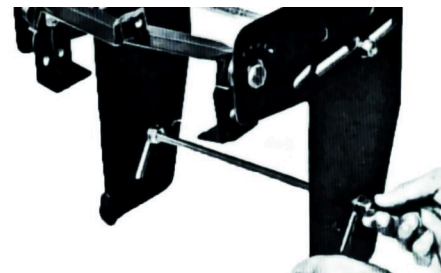
To get the most out of your Ruddersafe, take great care with the installation. Check the contents of the box against the parts page and study the drawing on the cover, so you understand how the parts fit together.



1. Screw the set screws (C) into the brackets by hand, but not through the plate. Make sure the screws engage properly in the slanted threaded holes. Lubricate these holes with grease.



- 3.** Insert bolt (A) with the washer into the rudder blade, so that the bolt projects approx. 5-6 mm on the inside of the rudder blade. Fit the matching half-bracket to the spring with the bevelled edge towards the leg of the spring (arrow 1), so that the leg of the spring is at the front of the bracket (arrow 2). Screw bolt (A) into the bracket by hand. Because of the spring tension, some effort is needed to hold the bracket in place. Make sure the spring does not get caught between the bracket and the bearing. Move the bracket to check that it moves freely and is pushed back by the spring.



5. Fit bolt (D) with the plastic sleeve to the rudder blade through hole no. 2. Fit the other bolt (D) at the top of hole no. 3. With an engine with a steep propeller pitch, it may be necessary to place the top bolt in hole no. 1.

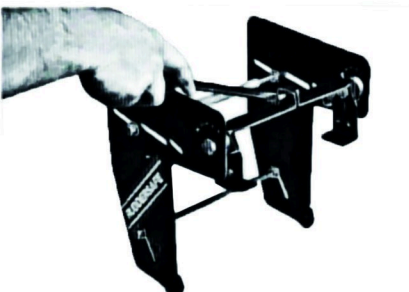


- 2.** The spiral springs (F) are left-handed and right-handed. The spring marked green is for the right-hand rudder blade, the red one for the left-hand blade. Place the springs over the rudder blade bearing with the colour-marked leg of the spring in the rearmost adjustment hole (see arrow).

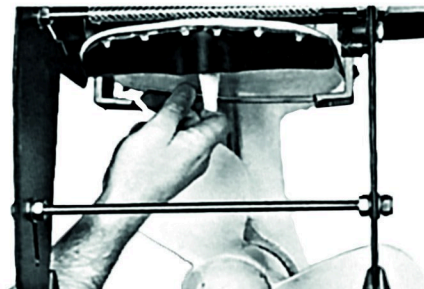
Fitting the rudder blades



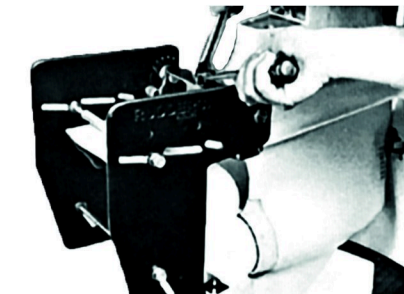
- 4.** Tighten the bolt by hand with a spanner and lock it with the thin lock nut on the end of the bolt (see arrow). Do not overtighten.



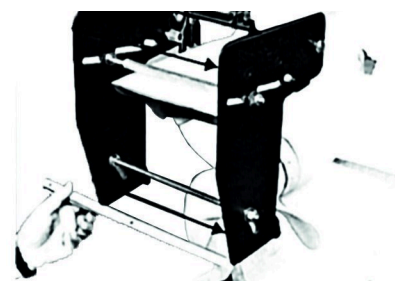
- 6.** Screw the track bolt (E) about 3-4 turns into the half-brackets. The rudder is now ready to be fitted onto the cavitation plate.



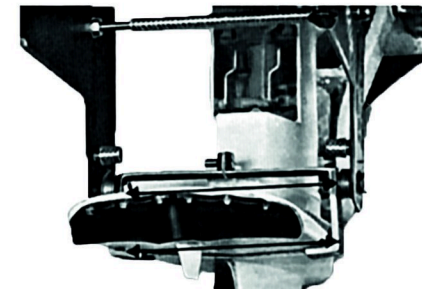
- 7.** Bring the rudder towards the cavitation plate until the top bolt (D) rests against the cavitation plate. Engage the top cross-stay (B) in the grooves of the bracket.



- 9.** Make sure the bracket is at right angles to the cavitation plate. The clearance between the propeller and each rudder blade must be at least 40 mm. Adjust it by moving the top bolt (D) along the groove or by moving the bracket lengthwise. Tighten the lock nut on the end of the track bolt (E) firmly by hand. Check once more that the bracket is at right angles to the cavitation plate.



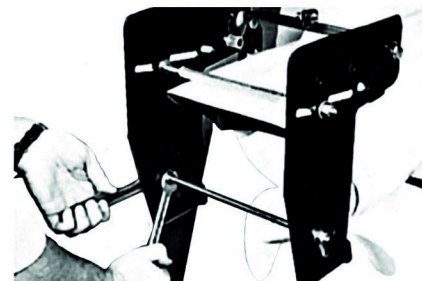
- 11.** The distance between the rudder blades must be the same at all points shown, with a maximum tolerance of 1 mm. If the gap is larger, so the blades are not parallel, the rudder may move up and down sluggishly.



8. Lift the bracket so that the cross-stay is close against the underside of the cavitation plate. Press the rudder right up against the cavitation plate. Bring the half-brackets towards each other with the track bolt (E), but only enough to keep the distance between the two half-brackets equal at the top and bottom (arrow 1).



- 10.** Place the filler shims (G) on the cavitation plate (see arrow) and tighten the set screws (C) by hand with the supplied hex key. Do not overtighten the set screws.



- 12.** If the rudder blades are not parallel, adjust the nuts on one side. Tighten the nuts by hand and check the other connections. Check that the rudder moves up and down normally and that the propeller turns freely.

To prevent oversteer (heavy steering), the Ruddersafe is designed to lift gradually out of the water as the boat starts to plane. The springs (F) stop the rudder from lifting too early. Test the rudder with the springs in the middle adjustment hole and, if necessary, move the spring legs until the boat keeps its course.

The Ruddersafe is made of corrosion-resistant materials with heat-cured epoxy. For use in sea water, treat all parts with antifouling. Sand the rudder lightly before applying antifouling.

After 5 to 10 hours of running, check all nuts and bolts on the rudder and retighten them by hand if necessary.