

WILEY  NAUTICAL



Peter Aitken and Tim Davison

# The Mirror Book

  
Lifeboats



Mirror Sailing from Start to Finish

# **Contents**

## **Part 1: Sailing the boat**

### **Chapter 1: Rigging a Basic Boat**

### **Chapter 2: Rigging a Gaff-Rigged Racing Boat**

**Rigging the mast**

**The boom**

**Attaching the jib**

**Attaching the mainsail**

**Doing a dummy hoist to get the lacing line organised**

**Getting ready to hoist**

**Hoisting**

### **Chapter 3: Rigging a Bermudian Boat**

### **Chapter 4: Sailing Theory**

**How does a boat sail?**

**How can I steer?**

**How can I stop?**

**How can I tell which way the wind is blowing?**

**Points of sailing**

**Reaching**

**Beating**

*Running*

## *Chapter 5: A First Sail*

*The next steps*

## *Chapter 6: Launching*

*Launching with the wind along the shore*

*Launching with an offshore wind*

*Launching with an onshore wind*

*Launching in very shallow water*

*Launching in waves - onshore wind*

*Launching from a jetty*

## *Chapter 7: Reaching*

*What is reaching?*

*Reaching in light winds*

*Reaching in strong winds*

## *Chapter 8: Beating*

*What is beating?*

*Beating in light winds*

*Beating in strong winds*

*Beating - some common mistakes*

## *Chapter 9: Tacking*

*What is tacking?*

*Six steps to a good tack - helm*

*Roll tacking*

*Six steps to a good tack - crew*

[\*Tacking with a centre mainsheet\*](#)  
[\*Tacking - some common mistakes\*](#)

## [\*\*Chapter 10: Running\*\*](#)

[\*What is running?\*](#)

[\*Running in light winds\*](#)

[\*Running in strong winds\*](#)

[\*Running - some common mistakes\*](#)

## [\*\*Chapter 11: Gybing\*\*](#)

[\*What is gybing?\*](#)

[\*Six steps to a safe gybe - helm\*](#)

[\*Gybing in very strong winds\*](#)

[\*Gybing with a centre mainsheet\*](#)

## [\*\*Chapter 12: Capsizing\*\*](#)

[\*Avoiding a capsize to leeward\*](#)

[\*Avoiding a capsize to windward\*](#)

[\*Righting the boat\*](#)

## [\*\*Chapter 13: Landing\*\*](#)

[\*Landing with the wind along the shore\*](#)

[\*Landing in very shallow water\*](#)

[\*Landing in big waves and an onshore wind\*](#)

## [\*\*Part 2: The Spinnaker\*\*](#)



**Chapter 14: Setting Up the Spinnaker Gear**

**Chapter 15: Hoisting the Spinnaker**

**Chapter 16: Trimming on a Reach**

**Chapter 17: Trimming on a Run**

**Chapter 18: Gybing With a Self-Launching Pole**

**Chapter 19: Lowering the Spinnaker**

**Part 3: The elements of racing**

**Chapter 20: The Rules**

**Boats meeting on the same tack**

**Boats meeting at marks**

**Chapter 21: The Line Start**

**How is a race started?**

**How can I get a good start?**

**Which end of the line should I start?**

**How do I make a starboard end start?**

**How do I make a port end start?**

**Chapter 22: The Beat**

*What about other boats?*

*Which way should I go?*

*Windshifts*

*How can I get up the beat faster?*

## *Chapter 23: The Reach*

*What course should I steer?*

*How can I get down the reach faster?*

*Starting the next beat*

## *Chapter 24: The Run*

*What course should I steer?*

*What about crowding at the leeward mark?*

*How do I get down the run faster?*

# *Part 4: Masterclasses*

## *Chapter 25: Mental and Physical Fitness*

## *Chapter 26: Setting Up the Boat for Racing*

## *Chapter 27: Boatspeed*

*Buddy System*

*The Squad System*

## *Chapter 28: Advanced Boat Handling*

**1 Starting**

**2 Trim**

**3 Tacking**

**4 Rounding the Windward Mark**

**5 Gybing**

**6 Spinnaker Drop**

**8 Penalty Turns**

## **Chapter 29: Advanced Crewing**

## **Chapter 30: Race Preparation**

**At home**

**When you arrive at the venue**

**Going out to the start**

## **Chapter 31 : Travelling to an Event**

**Trailer**

**Speed limits**

**Timing the journey.**

## **Chapter 32: Strategy**

**The start**

**After the start**

**On the reach**

**On the run**

**The finish**

## **Chapter 33 : Parents, Coaches, be Your Own Coach**

**Parents**

**Coaches**

**Being your own coach**

# The Mirror Book

Mirror Sailing from Start to Finish

PETER AITKEN AND TIM DAVISON

With Illustrations by Nikki Gately

WILEY  NAUTICAL



John Wiley & Sons, Ltd

Copyright © 2008 John Wiley & Sons Ltd, The Atrium,  
Southern Gate, Chichester,

West Sussex PO19 8SQ, England

Telephone (+44) 1243 779777

Email (for orders and customer service enquiries): [cs-books@wiley.co.uk](mailto:cs-books@wiley.co.uk)

Visit our Home Page on [www.wiley.com](http://www.wiley.com)

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except under the terms of the Copyright, Designs and Patents Act 1988 or under the terms of a licence issued by the Copyright Licensing Agency Ltd, 90 Tottenham Court Road, London W1T 4LP, UK, without the permission in writing of the Publisher. Requests to the Publisher should be addressed to the Permissions Department, John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England, or emailed to [permreq@wiley.co.uk](mailto:permreq@wiley.co.uk), or faxed to (+44) 1243 770620.

Designations used by companies to distinguish their products are often claimed as trademarks. All brand names and product names used in this book are trade names, service marks, trademarks or registered trademarks of their respective owners. The Publisher is not associated with any product or vendor mentioned in this book.

This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold on the understanding that the Publisher is not engaged in rendering professional services. If professional advice or other expert assistance is required, the services of a competent professional should be sought.

***Other Wiley Editorial Offices***



John Wiley & Sons Inc., 111 River Street, Hoboken, NJ 07030,  
USA

Jossey-Bass, 989 Market Street, San Francisco, CA 94103-  
1741, USA

Wiley-VCH Verlag GmbH, Boschstr. 12, D-69469 Weinheim,  
Germany

John Wiley & Sons Australia Ltd, 42 McDougall Street, Milton,  
Queensland 4064, Australia

John Wiley & Sons (Asia) Pte Ltd, 2 Clementi Loop #02-01,  
Jin Xing Distripark, Singapore 129809

John Wiley & Sons Canada Ltd, 6045 Freemont Blvd.  
Mississauga, Ontario, L5R 4J3 Canada

Wiley also publishes its books in a variety of electronic  
formats. Some content that appears in print may not be  
available in electronic books.

Anniversary Logo Design: Richard J. Pacifico

**Library of Congress Cataloging-in-Publication Data**

Aitken, Peter.

The mirror book: mirror sailing from start to finish / Peter  
Aitken and

Tim Davison; illustrations by Nikki Gately.

p. cm.

Includes bibliographical references.

ISBN 978-0-470-51938-7 (pbk.)

1. Sailing. 2. Mirrors (Sailboats) I. Davison, Tim. II.  
Title. III. Title: Mirror sailing from start to finish.

GV811.6.A58 2008

797.124—dc22

2008001321

## **British Library Cataloguing in Publication Data**

A catalogue record for this book is available from the British Library

ISBN 978-0-470-51938-7 (pb)

This book is printed on acid-free paper responsibly manufactured from sustainable forestry in which at least two trees are planted for each one used for paper production.

# ***Acknowledgements***

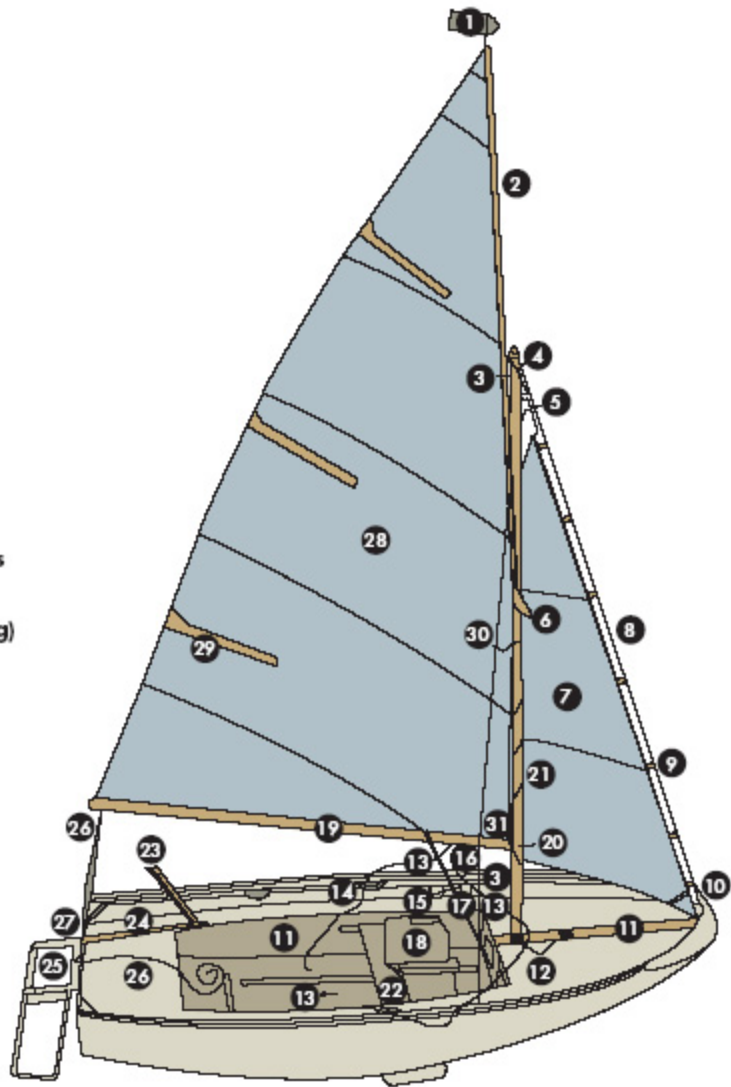
The authors gratefully acknowledge the help of Shelley Baxter for typing the manuscript.

Some of this material originally appeared in Roy Partridge's excellent book, *Sailing the Mirror*.

The photos were taken by Liz Mansell, Andy Fitzgerald, Peter Aitken and Alistair MacKenzie. Thanks to Tom and James Lovesey for sailing, in the cold, in front of the camera.

Thanks also to Itchenor Sailing Club and Warsash Sailing Club for providing premises for the shoots.

- 1 Binnacle
- 2 Gaff
- 3 Main halyard
- 4 Jib halyard strop
- 5 Jib halyard
- 6 Gaff jaws
- 7 Jib
- 8 Forestay
- 9 Hanks
- 10 Bow
- 11 Buoyancy tanks
- 12 Forward and aft mast steps
- 13 Jibsheet
- 14 Fairlead
- 15 Forward and aft shroud anchorages
- 16 Shroud
- 17 Kicking strap (vang)
- 18 Centreboard
- 19 Boom
- 20 Gooseneck
- 21 Mast
- 22 Thwart
- 23 Tiller extension
- 24 Tiller
- 25 Rudder
- 26 Mainsheet
- 27 Stern/transom
- 28 Mainsail
- 29 Batten/batten pocket
- 30 Luff rope
- 31 Downhaul





## ***Part 1***

### ***Sailing the boat***

- **Rigging a basic boat**
- **Rigging a gaff-rigged racing boat**
- **Rigging a Bermudian boat**
- **Sailing theory**
- **A first sail**
- **Launching**
- **Reaching**
- **Beating**
- **Tacking**
- **Running**
- **Gybing**
- **Capsizing**
- **Landing**

# ***Chapter 1***

## ***RIGGING A BASIC BOAT***

The standard Mirror dinghy can be rigged in a few minutes – with a little practice! A sensible order for putting it together is given below. The boat should then look like the drawing on page ix.

- Point the boat into the wind.
- Loop the jib halyard strop over the top of the mast so the block hangs forward of the mast.
- Loop the two shrouds over the top of the mast (see photo page 4).
- Loop the forestay over the top of the mast.
- Attach the opposite ends of the shrouds to the aft (back) shroud anchorages.
- Run gaff and jib halyards through their respective blocks at the top of the mast, the gaff from stern to bow and the jib from bow to stern.
- Set the mast upright in the aft mast step.
- Fasten the forestay to the forestay chainplate.
- Loop the kicking strap (vang) over the boom.
- Fasten the mainsheet (the rope controlling the mainsail) on the port side of the transom. Lead the mainsheet through the eye of the boom and back through the eye on the starboard side of the transom. Tie a figure-of-eight knot in the end (see page 7).
- Attach the boom to the gooseneck.
- Slide the mainsail up the gaff and fasten the peak of the sail to the top of the gaff with a short length of rope.



- Insert the sail battens (thin end first) in their batten pockets.
- Fasten the clew of the mainsail to the end of the boom with a shackel. Tie a second piece through the clew and around the boom.
- Wind the luff rope around the mast. Tie a second piece through the tack and around the mast.
- Hoist the gaff tight to the mast.
- Secure the downhaul and luff rope.
- Attach the jib head to the halyard and raise the jib slightly.
- Attach the jib hanks to the forestay.
- Fasten the jib tack to the forestay anchorage with a length of rope.
- Fasten the jib sheets to the jib clew and lead back through the fairleads. Tie a figure-of-eight knot at the end of each jib sheet.
- Hoist the jib fully. Make sure the halyard is tight.
- Attach the rudder and tiller to the transom. Pull the rudder blade up and cleat the rope on the tiller.
- Check the bungs are all in place in the buoyancy compartments.

When afloat, put in the centreboard and push down the rudder blade.

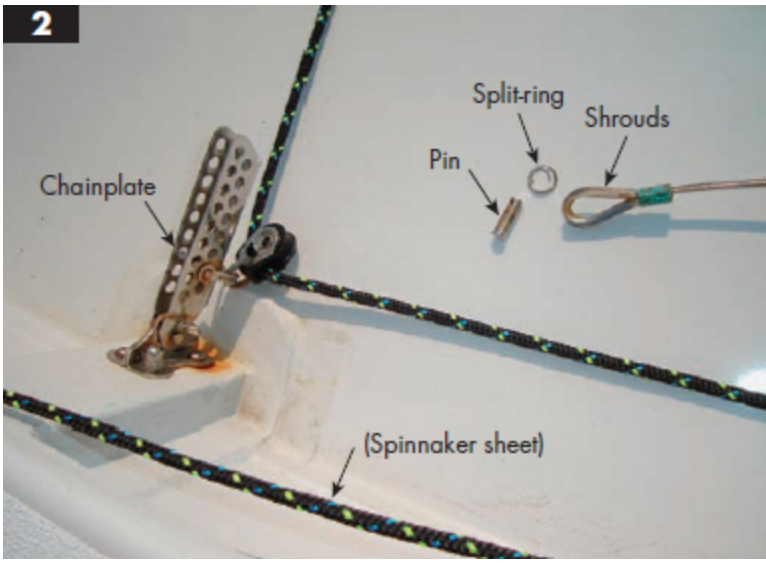
## ***Chapter 2***

# ***RIGGING A GAFF-RIGGED RACING BOAT***

## **Rigging the mast**

First, put the strops on the shrouds, forestay and jib halyard over the top of the mast (photo 1). The jib halyard goes on first, followed by the forestay - on some boats these are combined. Then put on the shrouds. Make sure they are all at the correct angle - that is, they should be pointing at the chainplates when the mast is up. The mast may also have a crane for the spinnaker halyard. Spinnakers are covered in Part 2.

- Connect the shrouds to their respective chainplates (photo 2). This is usually via a pin and split-ring arrangement. Later, we will see how to use this to adjust the rake of the mast. For the time being, just make sure that the two shroud lengths are equal.
- Don't attach the bottom of the forestay at this stage.
- Check that the jib halyard and the main halyard are led through the pulleys correctly, from forward aft for the jib halyard and from aft forward for the main.
- Lay the mast along the boat, and push it aft (photo 3). This keeps the shrouds tight.
- Raise the mast, with its foot down into the front of the cockpit. Then lift the mast onto the mast step (photo 4). (If there are two steps, use the aft one.)







The forward one is for single-handed sailing, using a mainsail only.)

- Tie the forestay lanyard to the chainplate at the bow (photo 5). The trick is to bend the rope before you try

threading it through the top hole of the chainplate. Tension the rope until you can twang the forestay to give a musical note.

- Check that the shrouds and halyards are properly aligned. Secure the halyards so they don't blow away.

Note that raising the mast is more easily achieved by one person than two.

## **The boom**

- The racing boom will probably come with the outhaul rigged (photo 6). If not, attach it (photos 7 and 8).
- Fit the kicking strap (vang) (photo 9).
- Fit the boom onto the gooseneck with the pin (photo 10).
- Rig the mainsheet (photo 11). There are two eyes on top of the transom. Tie the end of the mainsheet to the port eye, either with a bowline or simply by pushing the rope through from inboard to out, and putting a thumb knot in the end. (This helps the mainsheet fall into the boat rather than in the water.) Now feed the sheet through the pulley on the boom and then through the ratchet block on the other eye. Check that the ratchet block is the right way round - it should be easy to pull in but hold the sheet a bit when it is paid out.



