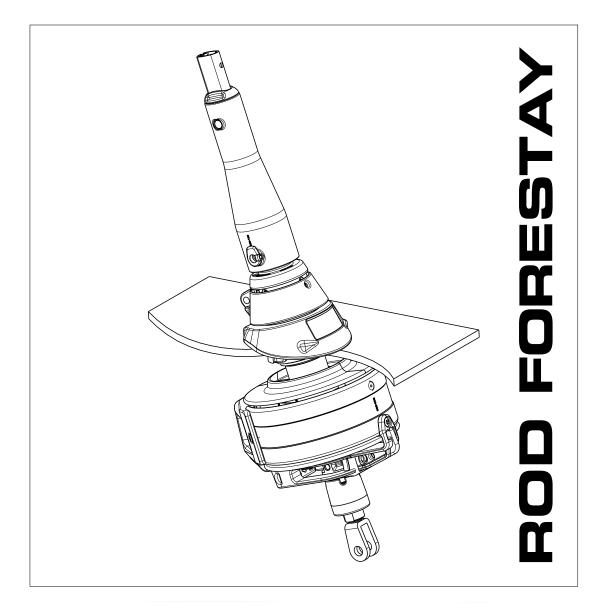


# Assembly manual Furlex 200TD, 300TD & 400TD with rod forestay





# **1** Introduction

### 1.1 The manual

- □ This manual covers assembly of the rod forestay and replaces the corresponding headings in the "Manual Furlex 200 TD, 300 TD" (part no: 595-231-E) These instructions are included in Furlex box. See "Contents" on page 3.
- $\Box$  It is very important to read both manuals and note any cross references.
- $\square$  All safety-related information is indicated by the following symbol:



- The manual covers three different Furlex sizes, 200 TD, 300 TD and 400 TD.
   The model designation can be found on the deck collar.
   The assembly procedure varies slightly between the different sizes. These differences are marked in the manual.
- $\Box$  All dimensions specified in the manual are in millimetres (mm) unless otherwise indicated.



This information must be followed to avoid damage to the system and the risk of personal injury.

The 2-year guarantee on the Furlex-system is only valid if the system is assembled and operated correctly according to the manual.



#### PLEASE read the entire manual prior to assembly.

Seldén Mast AB guarantees the Furlex-system for 2 years. The guarantee covers faults arising from defective design, materials or workmanship.

The guarantee is only valid if the Furlex-system is assembled, operated and maintained in accordance with this manual and is not subjected to loads in excess of those indicated in the brochure and instructions.

Complete shipment and warranty conditions are to be found on Seldéns website www.seldenmast.com. See Resources/Partners information/General information/General conditions of sale (595-546-E).

If the system is repaired by anyone other than Seldén Mast AB or one of our authorised dealers, the guarantee ceases to be valid.

Seldén Mast AB reserves the right to alter the content and design without prior warning and to future design changes.

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### **1.2 Product information**

When the original Furlex was introduced in 1983, it was not a pioneering project. We had studied the market and seen what was already available. We improved the jib furling concept in a number of ways. Furlex quickly became the market leader, a position it still occupies today. The first systems sold are still functioning well. Providing ample proof of the design's effectiveness and long-term staying power. Our success can also be put down to how we select a system for a specific yacht. First we calculate the boat's righting moment, which is the function of its displacement, ballast, beam and draught. Then we use righting moment in combination with the rig type to calculate its power when sailing, and the likely loads on the Furlex system. In this way, we achieve a correctly dimension jib furling system for each individual yacht.

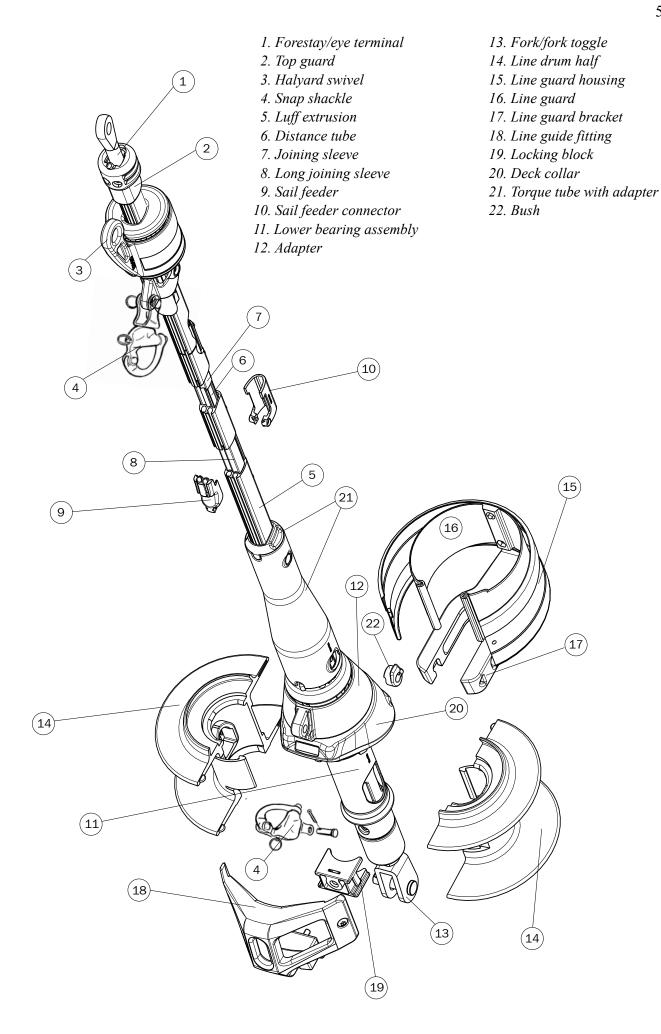
It has always been our intention to retain responsibility for our products through all stages of supply. Furlex is only sold through authorised local dealers who are able to cover all service requirements for the customer. Includingassistance with assembly, the modification of sails or the production of new sails, as well as service.

This new Furlex model range, for through-deck mounting, incorporates improvements based on our extensive experience, and represents the very latest development of the jib furling and reefing concept.

- □ Furlex is supplied as a complete assembly kit containing all the components required.
- □ Furlex TD can be split between the lower bearing assembly and the luft extrusion. The lower bearing assembly with line drum, etc. can be permanently installed in the yacht, even if the luff extrusion is disconnected.
- □ Furlex TD has a permanently fitted adjusting screw for exact adjustment in relation to the deck level, which considerably simplifies customising to different boat types.
- □ The halyard swivel features a load distribution system. A unique patented system which distributes loads over the entire ball race. This permits smoother furling and considerably reduces bearing wear.
- □ The tack ring's "free turn" flattens out the sail, promoting an efficient shape when reefed.
- □ Furlex TD is suited to both cruising and racing. With the line drum and line guide unit mounted below deck, the leading edge of the sail can be maximised along its entire length.
- □ The luff section has two luff grooves, allowing two jibs to be goose-winged when running down wind. And facilitating fast sail changes for racing yachtsmen.
- □ The aluminium extrusion is insulated from the forestay over its whole length. The extrusion joining sleeves are also are insulated internally. In order to prevent wear and corrosion.
- □ The line guide fitting centres the line as it is wound onto the drum. The flexible internal line guard maintains light pressure on the line to ensure even distribution on the drum.
- □ Furlex is manufactured by Seldén Mast, the world's leading manufacturer of masts and rigging systems. We wish you fine sailing with your Furlex.



#### Follow the instructions carefully when fitting.

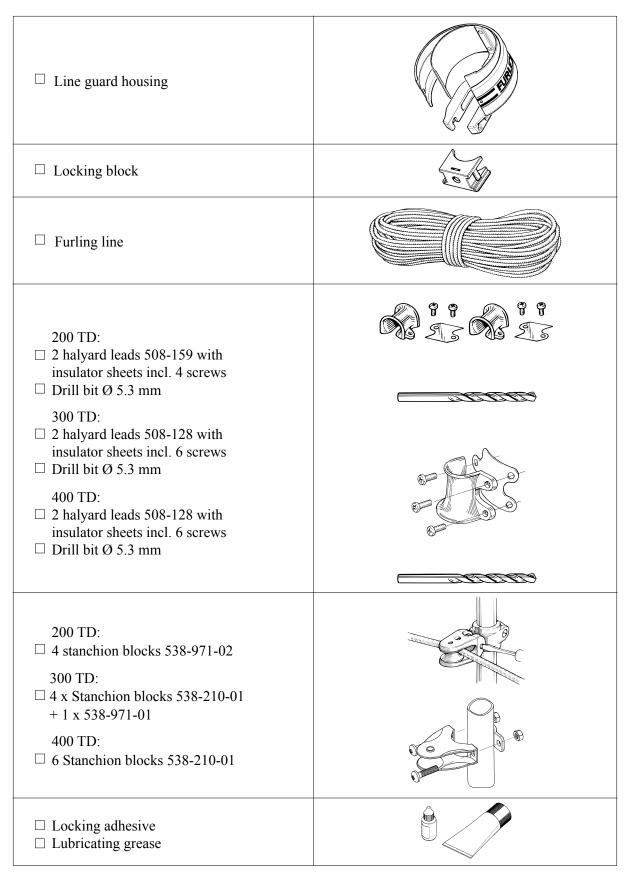


# ASSEMBLY

# 2 Check list

## 2.1 Furlex box

☐ Wire terminal with toggle	
Halyard swivel with snap shackle	
$\Box$ Lower bearing assembly with snap shackle	
Deckcollar with screws and template.	
Torque tube with adapter and extrusion screws	0-0
<ul> <li>2 x line drum halves</li> <li>(One with lock for furling line end, not 400 TD)</li> </ul>	
☐ Line guide fitting	



200/300TD □ Top guard incl. 2 screws	
400TD ☐ Top guard incl. 4 screws	
<ul> <li>☐ Instructions</li> <li>☐ Spare parts list</li> <li>☐ Certificate of guarantee</li> </ul>	

## 2.2 Foil pack

□ 200 TD: 1 x 800 mm luff extrusion 300 TD: 1 x 770 mm luff extrusion 400 TD: 1 x 660 mm luff extrusion	
<ul> <li>200 TD and 300 TD:</li> <li>□ 1 x 2000 mm luff extrusion with slotted distance tube 400 TD:</li> <li>□ 1 x 1700 mm luff extrusion with slotted distancetube</li> </ul>	
<ul> <li>2400 mm luff extrusion with slotted distance tube.</li> <li>(Number dependent on length ordered).</li> </ul>	
□ 200 TD, 300 TD and 400 TD: Sail feeder (Sail feeder + sailfeeder connector)	
□ 1 short connecting plate for each 2400 mm luff extrusion	
<ul> <li>□ 1 long connecting plate (For sail feeder)</li> <li>□ 1 locking pin forlower luffextrusion 200 TD: Ø 5x20 300 TD: Ø 5x25 400 TD: Ø 6x30</li> </ul>	

### 2.3 Joining sleeve pack

$\Box$ 1 long joining sleeve with insulator	
□ Short joining sleeves with insulator (Number dependent on length ordered)	
□ 1 Socket	
□ 1 seat for rod forestay in lower bearing assembly	
□ Instructions	

The joining sleeve pack and foil pack may be delivered as a combined package

### 2.4 Tools

#### Tools needed for assembly:

Screwdriver Hacksaw 2 adjustable spanners Polygrip pliers Adhesive tape File Marker pen (water-proof) Set of Torx keys Set of Allen keys (metric) Steel measuring tape (30 m) (100") Knife

#### For halyard leads:

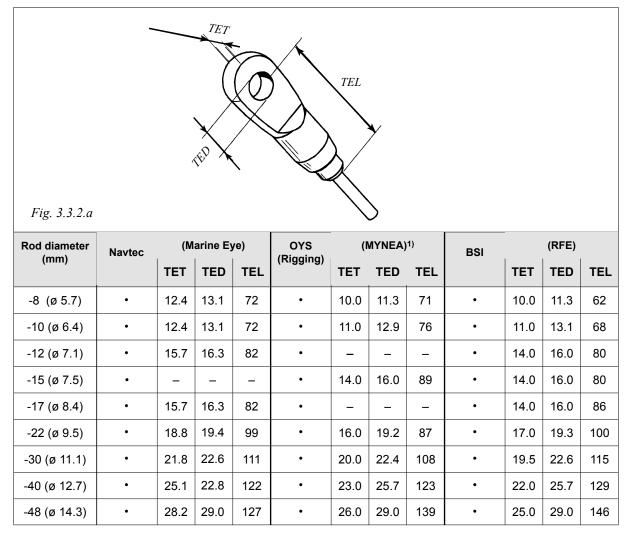
Heavy-duty Philips screwdriver Drill Drill bit Ø 5.3 mm (included in Furlex package) 10

# **3** Assembly preparations

- 3.1 Forestay attachment guiding principle
- **3.2** Mast attachment
- **3.3 Deck attachment**
- 3.3.1 Dimensions of lower bearing assembly

See "Manual Furlex 200 TD and 300 TD" (part no: 595-231-E) or "Manual Furlex 400 TD" (part no. 595-240-E)

### 3.3.2 Dimensions of top eye terminal



1) Type MYE can <u>not</u> be used.

## 3.3.3 Toggle dimensions 3.4 Assembly below deck



See "Manual Furlex 200 TD and 300 TD" (part no: 595-231-E) or "Manual Furlex 400 TD" (part no. 595-240-E)

### 3.5 Calculating the length of the rod forestay

- 1. Determine the rake of the mast with the fore-/backstay tensioned.
- 2. Slacken **backstay** as much as possible. But make sure that any rigging screw is not unscrewed so far that the threads are no longer visible "on the inside". The forestay setting should not be adjusted. However, if the forestay rigging screw setting has to be adjusted, measure the length or mark the original setting.
- 3. Pull the masthead forward using the genoa halyard. Secure the halyard using a "D" shackle or tie it to a strong deck fitting. For safety reasons, do not use the halyard snap shackle.



- 4. Take down the forestay. (If the rigging screw was adjusted, return it to its original setting.)
- 5. Measure the forestay length (FL) with just enough tension to keep it straight.
- 6. Enter the measurement in "Calculation Table 1" below, under the heading "Your forestay", on the row marked FL.
- 7. Calculate the new rod length WL in "Calculation Table 1". Refer to the column marked "example" to see how this is done.

3.5.1	Calculat	ion Table 1: Leng	th of rod	forestay			Your extrusion	Example (200 TD -8)
FL		estay length (FL), wit ging screw (See fig.		ad,				12.700
СН		ance between the fo ure in line with the fo	,	0		ting and the deck	+	+ 50
FLD		LD. rresponds with the t gging diagram.	heoretical o	distance that	at can be	= measured from		
TDH	Deduction for	or Furlex TD's high a	bove deck	•				
		TD deduction	n					
	200 T	D 145 mm						
	300 T	D 170 mm						
	400 T	D 250 mm						14.9
							-	_  45  2.605
NFL					Nev	v forestay length=		12.005
	Deduction for	or						
		Deddianatan	Nextee	OYS	DOL	Without		
		Rod diameter	Navtec	(Rigging)	BSI	rigging screw		
		-8 (ø 5.7 mm)	•	•	•	70		
	200 TD	-10 (ø 6.4 mm)	•	•	•	75		
	200 1D	-12 (ø 7.1 mm)	•	-	•	85		
т		-15 (ø 7.5 mm)	•	•	•	85		
I		-12 (ø 7.1 mm)	•	-	•	85		
	300 TD	-15 (ø 7.5 mm)	-	•	•	85		
		-17 (ø 8.4 mm)	•	-	•	90		
		-22 (ø 9.5 mm)	•	•	•	90		
		-22 (ø 9.5 mm)	•	•	•	110		
	400 TD	-30 (ø 11.1 mm)	•	•	•	110		_
		-40 (ø 12.7 mm)	•	•	•	135	-	<sub>-</sub> 7¢
н		extra toggles are to n (H) from FL. (See t					-	-
WL	See fig 3.	<b>F</b> -						12.535

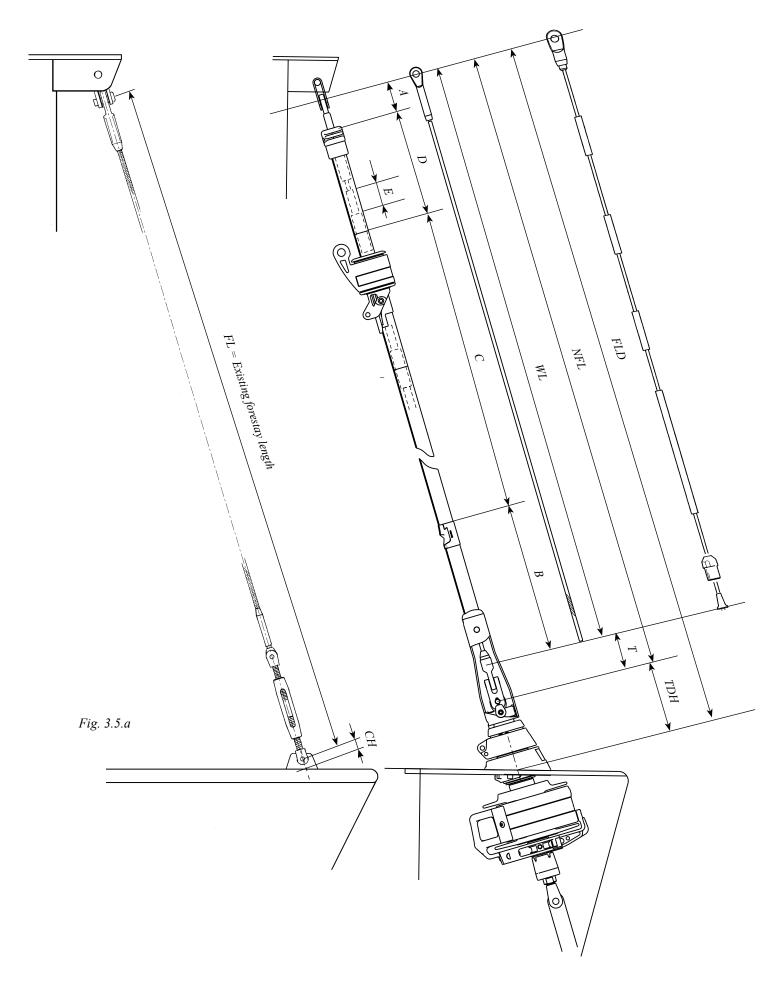
## 3.6 Calculating the length of the luff extrusion

- 1. Insert the length of the new rod forestay (WL) as calculated in "Calculation Table 1" i "Calculation Table 2", in the row marked WL.
- 2. Calculate the number of full-length extrusions and the length of the top extrusion.

3.6.1	Calculatio	n Table 2: Length	of luff ex	trusion			Your extrusion	Example (200 TD -8)
WL	Length of n	ew rod forestay (as p	er "Calcula	ition Table 1")				
A+B	Fixed deduc Check that	ction (A+B): length of terminal pa	rt of stay m	atches the mea	asurement	t in 3.3.		
		Rod diameter	Navtec	OYS (Rigging)	BSI	A+B deduction		
		-8 (ø 5.7 mm)	•	•	•	1020		
		-10 (ø 6.4 mm)	•	•	•	1020		
	200 TD	-12 (ø 7.1 mm)	•	-	•	1020		
		-15 (ø 7.5 mm)	-	•	•	1020		
		-12 (ø 7.1 mm)	•	-	•	1045		
	300 TD	-15 (ø 7.5 mm)	-	•	•	1045		
		-17 (ø 8.4 mm)	•	-	•	1045		
		-22 (ø 9.5 mm)	•	•	•	1045		
		-22 (ø 9.5 mm)	•	•	•	1025		
	400 TD	-30 (ø 11.1 mm)	•	•	•	1025		1 02 0
		-40 (ø 12.7 mm)	•	•	•	1025		1.020
C+D						C+D=	=	<sub>=</sub>   .5 5
	Max no of	2400 mm (94 1/2") e	extrusions w	hich together				(4 extrusions)
С		than C+D: [		-		C=	-	- 9.600
D					Length of	top extrusion =	=	= 1.915
	200/300 T 200 TD & If the top e will be too 2400 mm In this way Adjust the Deduct fro	Atrusion is normally of D, or 1700 mm (67") 300 TD xtrusion is shorter that close to the top. In thi (94 ½") extrusion with the joint is moved do C and D measureme of the C measureme D measurement:	extrusion 4 in 400 mm ( s case repla the 2000 m wn by 400 r nts as follow ent:200/300	400 TD) extrusi (15 3/4") (200/30 ace the uppermo nm (78 3/4") extr nm (15 3/4"). <i>v</i> s:	on. 00 TD), the ost full leng usion. 15 3/4")	: joint		
	will be too 2400 mm In this way Adjust the	xtrusion is shorter tha close to the top. In thi (94 ½") extrusion with the joint is moved do C and D measureme om the C measureme	s case repla the 1700 m wn by 700 r nts as follow	ace the uppermo im (67") extrusio mm (27 9/16"). vs:	ost full leng on.	-		

Cont. on next page.

3.6.1	Calculatio	on Table 2: Length of luff ext	Your extrusion	Example (200 TD -8)	
E		stance tube for the top extrusion i I deduction:	in accordance with the follo-		
	Furlex				
	200 TD	E = D - 100 mm (4")	_		
	300 TD	E = D - 125 mm (5")	_		
	400TD	E = D - 220* mm (8 5/8")*			
		ction will provide a space for ece top guard. (New 2020).	Deduction:	-	_ [00
			Length of distance tube E =	=	= <b> .8</b>  5



# **4 Assembly of the Furlex system** 4.1 Assembly of the rod forestay

Assembly is carried out by the rod supplier. Apart from the actual rod forestay, only the joining sleeve pack is required.

- 1. Measure the length of the rod forestay. (The WL measurement and corrections for the length of the top terminal and the cold-headed head at the lower end have been calculated in "**Calculation Table 1**".)
- 2. Cut the stay.
- 3. Form the head for the upper terminal and fit it. The eye part must only be fitted temporarily. Fasten any locking screws and attach the instructions for permanent assembly of the eye part.

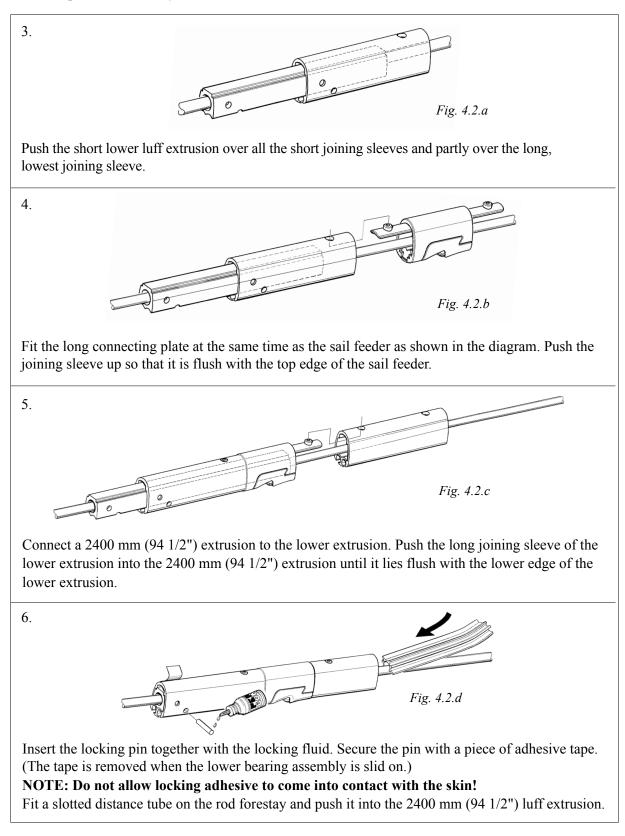
4.				
			Fig. 4	l.1.a
		]	]===[	
Thread the joining sleeve section	ns on in the follow	ving order count	ing from the top	
• Short joining sleeves with acc must correspond to the number C, section 3.6.1. Note that ex	er extrusions with	in region "C". Se	ee "Calculation	Table 2", row
<ul> <li>The long joining sleeve with a</li> </ul>	-			
• The socket. Be sure to turn it			8 p	
• Seat. Be sure to turn it as show	wn in the diagram	L.		

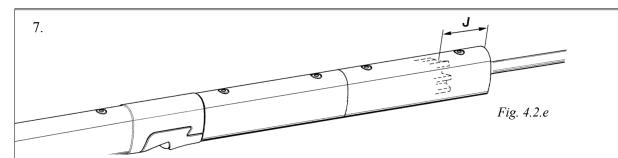
- 5. Cold-head the rod forestay at its lower end.
- 6. Pack the stay. Enclosing the completed "Calculation Tables 1 & 2".

### 4.2 Assembly of the luff extrusion

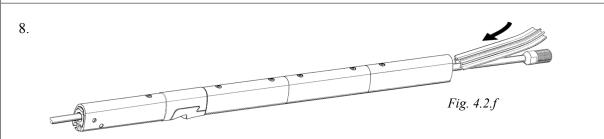
Assembly should be carried out on a horizontal surface. Connect the extrusions after each other as follows:

- 1. Unscrew the eye part of the upper terminal. Wind tape around the exposed thread of the male part to protect it.
- 2. Each extrusion must be pushed on over the short joining sleeves from the upper end of the stay in turn. Push the short joining sleeves up towards the upper end terminal and secure them in position with tape around the stay.





Release the lowest joining sleeve by the upper end terminal and secure the remaining sleeves again. Slide the next 2400 mm (94 1/2") extrusion over the rod's top, then fit the joining sleeve and connecting plate into it's lower end. Connect this to the lower extrusions. Fit a distance tube onto the rod and push it into the 2400 mm (94 1/2") extrusion. Release the next joining sleeve, and push the distance tube from the top until the lower joining sleeve touches the distance tube below the join. (A spare joining sleeve can be used as an aid.) Check that the distance (J) between the end of the distance tube and the end of the extrusion is approximately half the length of a joining sleeve. Connect the remaining extrusions in the same manner.



Fit the uppermost, cut distance tube. Release the next joining sleeve, and push the distance tube from the top until the lower joining sleeve touches the distance tube below the join. The top edge of the top distance tube should now be roughly flush with the top edge of the extrusion.

9.

200/300TD

Fit the halyard swivel over the top end of the extrusion. Slide it down as far as the sail feeder and secure it in this position with adhesive tape. Fit the top guard and secure it with the two pre-fitted screws. Tighten the screws until they bottom, but do not over-tighten.

#### 10.

#### 400TD

1. Fit the halyard swivel and slide it down to the sail feeder and secure it with tape.

2. Mark out and drill two clearance holes in the forward end of the luff extrusion as shown. Be careful not damaging the forestay.

3. Fit the two top guard halves over the forestay and screw them toghether. Use locking adhesive on screws.

4. Insert the assembled top guard into the luff extrusion and secure it with the two screws. Use locking adhesive.

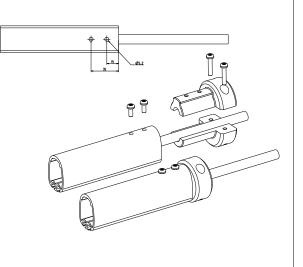
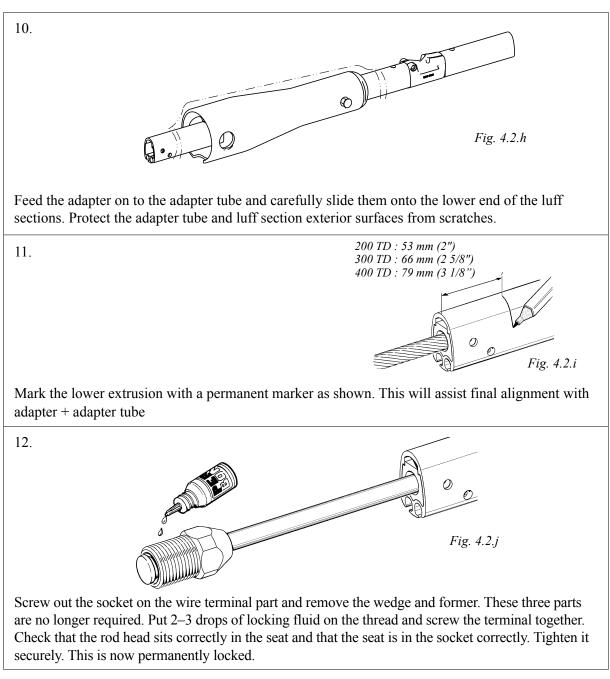


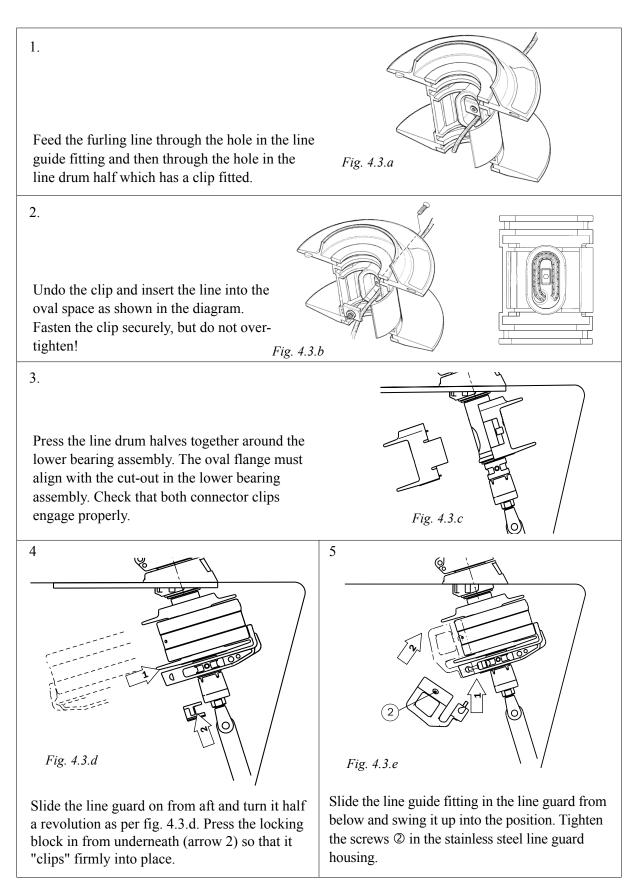
Fig. 4.2.g



- 12. Fit the eye part of the upper end terminal permanently with locking adhesive + any stop screw/ locking pin supplied.
- 13. Check the stay length FL in "Calculation Table 1" (3.5.1) & fig. 3.5.a.
- 14. We recommend rigging the Furlex system in the boat at this stage of the assembly. See "**Rigging**" section 16 in "Manual Furlex 200 TD and 300 TD" (part no: 595-231-S)

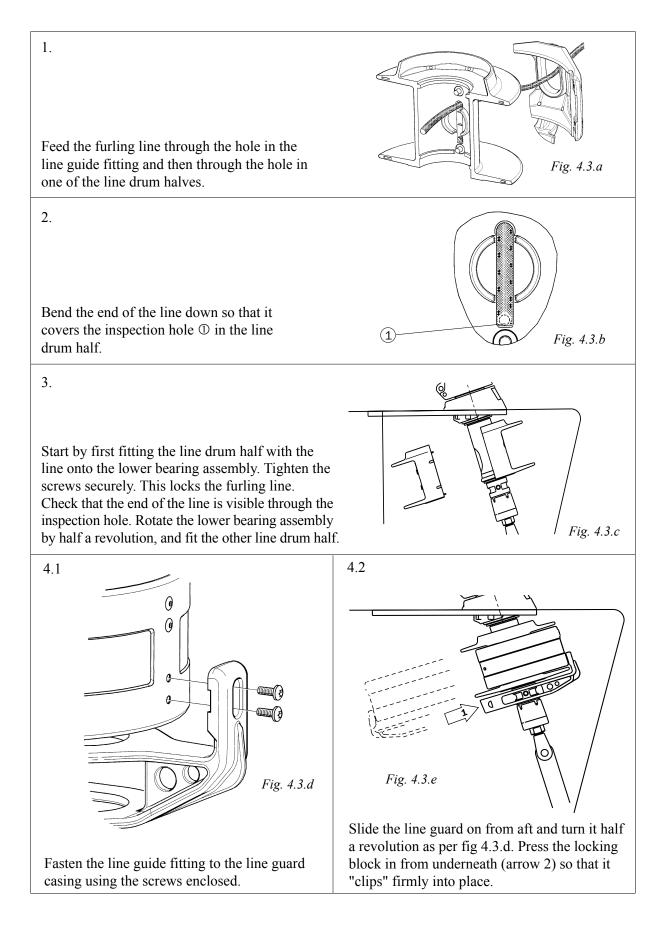
### 4.3 Fitting the line drum and line guide - 200 TD & 300 TD

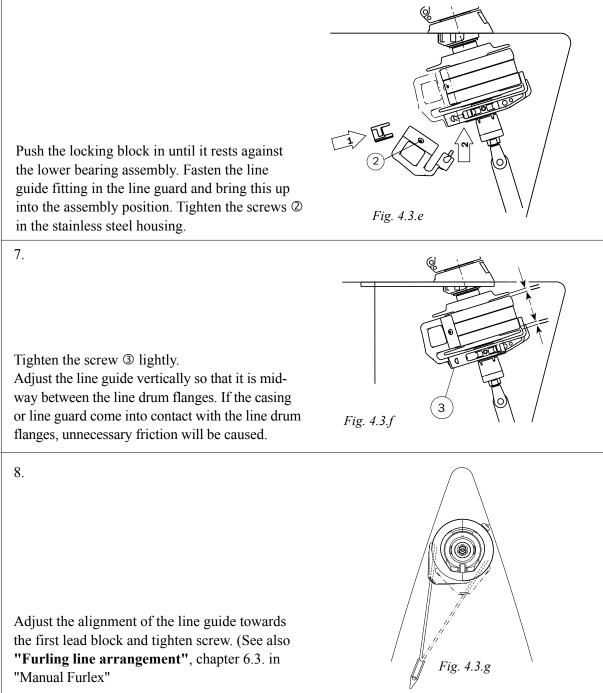
The line drum consists of two halves. It is easier to fit after the Furlex stay is fitted to the mast.



### 4.3 Fitting the line drum and line guide - 400 TD

The line drum consists of two halves. It is easier to fit after the Furlex stay is fitted to the mast.





5.

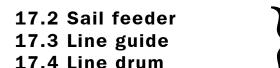
# **17 Dismantling**

## 17.1 Halyard swivel

See "Manual Furlex Furlex 200 TD and 300 TD" (part no: 595-231-E).

Navtec -10, -12/200, -22, -30, -40 and Rigging -9.5 mm, -40, -48.

The top guard and halyard swivel cannot be removed from the system by sliding them over the top eye terminal unless the eye part of the terminal is removed first.



See "Manual Furlex 200 TD and 300 TD" (part no: 595-231-E)

## 17.7 Luff extrusion system

For a better understanding of the following instructions, we recommend that you first read the section on assembly in chapter 4.1.

- 1. Place the luff extrusions on a flat surface, and make sure that they are straight.
- 2. Remove the eye part of the upper terminal
- 3 Knock out the locking pin at 800 mm (200TD) / 770 mm (300TD) / 660 mm (400TD) extrusions lower end.
- 4. Hold the luff extrusion system firmly and pull the lower terminal. This will bring the rod forestay, joining sleeves and distance tubes out together.

If this method does not work due to corrosion or damage, the luff extrusion system connectors can be drilled out. Use a Ø 6 mm (15/64") drill bit for the 200 TD, Ø 8 mm for 300 TD, and 400 TD.

### 17.8 Top guard

If exchanging the top guard:

Navtec -12/200 S, -22, -30, -40 and Rigging -40, -48: The top guard cannot be removed from the system by sliding them over the top eye terminal unless the eye part of the terminal is removed first.

Navatec -48, Rigging -22 mm: The internal flange at the top edge of the guard needs to be filed down.

Alternatively, the guard can be removed from below when dismantling the sail feeder and removing the lower bearing assembly and halyard swivel.

# Notes/Comments

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